

85-03
0500
Indus.

Belews Creek Steam Station

Cameron Johnson

| | | |
|----------------------------------|-----------------------|-----------------|
| Scanned by <i>[Signature]</i> | Date <i>10/8/2</i> | Doc ID # RCO |
|----------------------------------|-----------------------|-----------------|

85-03

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Belews Creek Pine Hall Ash Landfill Permit (#85-03) – Groundwater Map

Prepared for:
Duke Power Company
Charlotte, NC

Prepared by:
Schaeffer Geological Services, PLLC
Charlotte, NC
And
Devine Tarbell & Associates, Inc.
Charlotte, NC

July 2005



SCHAEFFER GEOLOGICAL SERVICES, PLLC
Engineering Geology and Seismology
6521 Highwood Place
Charlotte, NC 28210-5329 USA



Devine Tarbell & Associates, Inc.
Consulting Engineers, Scientists, & Regulatory Specialists

Belews Creek Steam Station

**BELEWS CREEK PINE HALL ASH LANDFILL
PERMIT (#85-03) - GROUNDWATER MAP**

**Prepared for:
DUKE POWER COMPANY
Charlotte, North Carolina**

**Prepared by:
SCHAEFFER GEOLOGICAL SERVICES, PLLC
6521 Highwood Place
Charlotte, NC 28210-5329**

and

**DEVINE TARBELL & ASSOCIATES, INC.
400 South Tryon Street, Suite 2401
Charlotte, North Carolina 28285**

**SGS Project No.: 01.1002.05
DTA Project No.: 024.0097.0000**

July 22, 2005

SCHAEFFER GEOLOGICAL SERVICES, PLLC
Engineering Geology and Seismology
6521 Highwood Place
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Charlotte, NC 28210-5329 USA



Devine Tarbell & Associates, Inc.
Consulting Engineers, Scientists, & Regulatory Specialists

July 22, 2005

William M. Miller, P.E.
Duke Energy Corporation
Environmental Engineering
P. O. Box 1006
Charlotte, NC 28201-1006

Subject: Belews Creek Ash Landfill (Permit #85-03) – New Groundwater Map

Dear Mr. Miller:

As requested, I have prepared a new groundwater map (Figure 1 – Enclosed) using data from the monitoring and observation wells as well as data from the piezometers installed last fall to investigate the water level in Observation Well OB-1 (“Belews Creek Pine Hall Ash Landfill Permit (#85-03) – Investigation of the Water Level in Observation Well OB-1”, dated February 10, 2005). The groundwater contours are based on measurements made on May 25, 2005. The perched water table discussed in the February 2005 report is shown in Figure 1 on both the plan and appropriate cross-section. Also included in this report is Figure 2, an aerial photograph of the ash landfill with the locations of the piezometers, monitoring wells, and observation wells.

The logs of the wells/piezometers used to develop the groundwater map are included in Attachment A.

If you have any questions or need additional information please let me know.

Sincerely,

Malcolm F. Schaeffer, PG,
Schaeffer Geological Services, PLLC
6521 Highwood Place
Charlotte, NC 28210-5329



546 North Carolina Licensed Geologist #546

ATTACHMENT A

WELL COMPLETION RECORD

COMPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE
DEPARTMENT OF HUMAN RESOURCES, SOLID AND HAZARDOUS WASTE MANAGEMENT BRANCH
P.O. BOX 2091, RALEIGH, N.C. 27602

NAME OF SITE:

BELEW'S CREEK STEAM STATION

PERMIT NO.:

85-03

ADDRESS:

P.O. BOX 557, WALNUT CREEK, NC 27062

OWNER (print):

DUKE POWER CO.

DRILLING CONTRACTOR:

DUKE POWER CO.

REGISTRATION NO.:

921

Casing Type: THREADED PIC dia. 2" in. Grout Depth: from 0 to 28.1 ft. - dia. 6.25
Casing Depth: from 0 to 33.1 ft. - dia. 2" in. Bentonite Seal: from 28.1 to 31.1 ft. - dia. 6.25
Screen Type: SLOT-DRILL TRILOC PIC dia. 2" in. Sand/Gravel PK: from 31.1 to 44.5 ft. - dia. 6.25
Screen Depth: from 33.1 to 43.1 ft. - dia. 2" in. Total Well Depth: from 0 to 44.5 ft. - dia. 6.25
Static Water Level: 31.4 feet from top of casing Date Measured 8/9/89
Yield (gpm): N/A Method of Testing: N/A Casing is 1.9' feet above land surface

DRILLING LOG

DEPTH

FROM

TO

FORMATION DESCRIPTION

MW-1

SEE SOIL TEST BORING

FIELD REPORT FOR MW-1

@ FLYASH LANDFILL.

LOCATION SKETCH

(show distance to numbered roads, or other map reference points)

REMARKS:

SCREEN WAS PLACED IN THE MOST HYDRAULICALLY
CONDUCTIVE AQUIFER PER RALPH ROBERTS.

DATE:

8-11-89

SIGNATURE:

David L. Dickson

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BELENS CREEK

SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLASH LANDFILL MW'sGROUND SURFACE ELEV. N/AHRS. DRILLING N/A HRS. MOVING N/ADATE 8-3-89WEATHER HotINSPECTOR D. DICKSON BORING NO. MW-1

| SAMPLING | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|----|-------|----|---|
| 1ST 6" | 2ND 6" | 3RD 6" | | | | |
| | | | | 0 | | |
| 1 | 3.3 | | | | | AD-2 DRILL RIG # 2555 USING 6" ϕ AUGER REDDISH YELLOW MICA. SILTY FINE TO MEDIUM SAND |
| | 4.8 | 3 | 4 | 4 | | |
| | | | | 5 | | |
| 2 | 8.3 | | | | | REDDISH YELLOW MICA. SILTY FINE TO MEDIUM SAND |
| | 9.8 | 3 | 4 | 4 | 10 | |
| | | | | | | |
| 3 | 13.3 | | | | | 12 RED MICA. FINE TO MEDIUM SANDY SILT |
| | 14.8 | 4 | 3 | 6 | 15 | |
| | | | | | | |
| 4 | 18.3 | | | | | RED MICA. FINE TO MEDIUM SANDY SILT |
| | 19.8 | 3 | 4 | 5 | 20 | |
| | | | | | | |
| 5 | 23.3 | | | | | BROWNISH YELLOW MICA. FINE TO MEDIUM SANDY SILT |
| | 24.8 | 10 | 18 | 17 | 25 | |
| | | | | | | |
| 6 | 28.3 | | | | | REDDISH YELLOW MICA. FINE TO MEDIUM SANDY SILT |
| | 29.8 | 4 | 6 | 7 | 30 | |
| | | | | | | |
| 7 | 33.3 | | | | | 32 REDDISH YELLOW MICA SILT-1 FINE TO MEDIUM SAND |
| | 34.8 | 6 | 8 | 9 | 35 | |
| | | | | | | |
| 8 | 38.3 | | | | | YELLOW MICA. SILTY FINE TO MEDIUM SAND |
| | 39.8 | 3 | 6 | 8 | 40 | |
| | | | | | | |

| | | | |
|---|--|------------------------------|-----------|
| BORING TERMINATED <u>@ 44.5'</u> | | METHOD OF ADVANCING BORING | DEPTH |
| BORING REFUSAL <u>AUGER @ 44.5'</u> | | POWER AUGER | 0 TO 44.5 |
| WATER TOB DEPTH <u>42.0' on 8-3-89</u> | | HAND CHOP. W/MUD. W/WATER | — TO — |
| WATER 24 HR. DEPTH <u>29.5' on 8-9-89</u> | | ROTARY DRILL. W/MUD. W/WATER | — TO — |
| WATER LOSSES <u>N/A</u> | | DIAMOND CORE | — TO — |
| CASING SIZE <u>N/A</u> LENGTH <u>0</u> | | | |

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE
1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BELOW'S CREEK
SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLASH LANDFILL MW'SGROUND SURFACE ELEV. N/ADATE 8-3-89WEATHER HOTHRS. DRILLING N/AHRS. MOVING N/AINSPECTOR D. DICKSONBORING NO. MW-1

| SAMPLING | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|-------|----|---|
| 1ST 6" | 2ND 6" | 3RD 6" | | | |
| | | | 40 | | |
| | | | | | |
| | | | | | |
| 9 | 43.3 | | | | |
| | 44.1 | 8 | 45 | | OLIVE YELLOW MICA. SILTY FINE TO COARSE SAND AND SEVERELY WEATHERED ROCK AUGER REFUSAL @ 44.5' BORING TERMINATED |
| | | | | | |
| | | | | | |
| | | | 50 | | SET MONITOR WELL PER ATTACHED SKETCH. |
| | | | | | |
| | | | | | |
| | | | 55 | | |
| | | | | | |
| | | | | | |
| | | | 60 | | |
| | | | | | |
| | | | | | |
| | | | 65 | | |
| | | | | | |
| | | | | | |
| | | | 70 | | |
| | | | | | |
| | | | | | |
| | | | 5 | | |
| | | | | | |
| | | | | | |
| | | | 0 | | |

BORING TERMINATED @ 44.5'
BORING REFUSAL AUGER @ 44.3'
WATER TOB DEPTH 42.0' on 8-3-89
WATER 24 HR: DEPTH 29.5' on 8-9-89
WATER LOSSES N/A
CASING SIZE N/A LENGTH 0

METHOD OF ADVANCING BORING

DEPTH

POWER AUGER

0 TO 44.5

HAND CHOP: W/MUD: W/WATER

— TO —

ROTARY DRILL: W/MUD: W/WATER

— TO —

DIAMOND CORE

— TO —

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE
1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

AS-BUILT INSTALLATION SKETCH

Instrument No. MW-1

Station N/A

Offset N/A

By D. DICKSON

Date 8-11-89

NOTE:

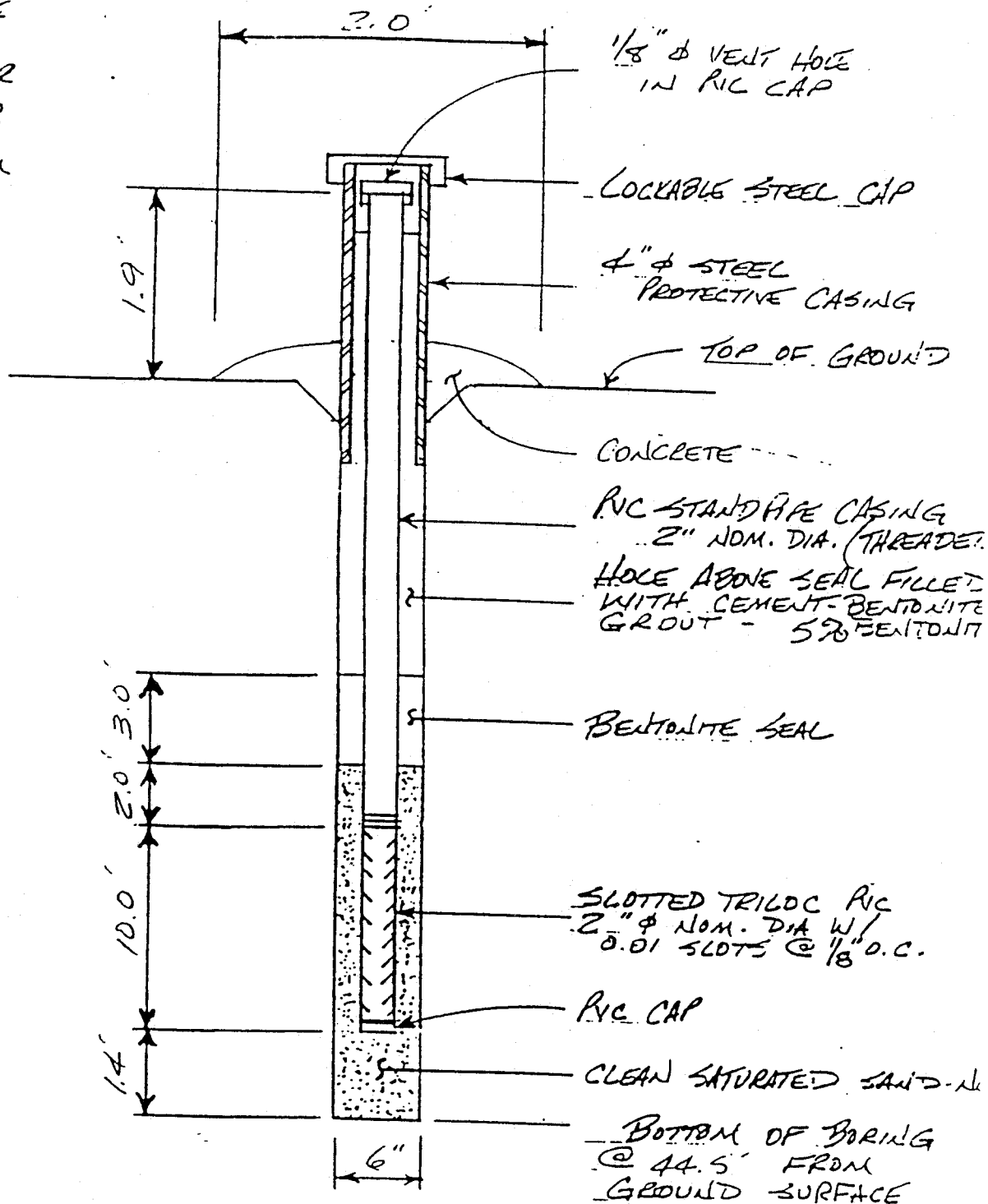
NOT TO SCALE

INITIAL WATER
LEVEL RDG @

31.4' FROM

TOP OF PIPE
ON 8-9-89

T/ARE ELEV.
15



WELL COMPLETION RECORD

| | | |
|---|--|----------------------------------|
| NAME OF SITE: BELEWS CREEK STEAM STATION | | PERMIT NO.: 85-03 |
| ADDRESS: P.O. BOX 557, WALNUT COVE, NC 27052 | | OWNER (print): DUKE POWER CO. |
| DRILLING CONTRACTOR: DUKE POWER CO. | | REGISTRATION NO.: 921 |

Casing Type: THREADED TRILOC RIC dia. 2 in. Grout Depth: from 0 to 32.9 ft. - dia. 2.2
Casing Depth: from 0 to 37.9 ft. - dia. 2 in. Bentonite Seal: from 32.9 to 35.9 ft. - dia. 2.2
Screen Type: SLOT .010 TRILOC RIC dia. 2 in. Sand/Gravel PK: from 35.9 to 50.5 ft. - dia. 2.2
Screen Depth: from 37.9 to 47.9 ft. - dia. 2 in. Total Well Depth: from 0 to 50.5 ft. - dia. 2.2

Static Water Level: 43.2 feet from top of casing Date Measured 8 / 9

Yield (gpm): N/A Method of Testing: N/A Casing is 2.1 feet above land s

[illegible]

LOCATION SKETCH

(show distance to numbered roads, or other map reference p

REMARKS: SCREEN PLACED IN MOST HYDRAULICALLY
CONDUCTIVE AQUIFER PER RALPH ROBERTS.

DATE: 8-11-89 SIGNATURE: David L. Pickens

FORM M-26C

REVISION 2

PAGE 1 OF 2

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BELLEVILLE CREEK

SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLYASH LANDFILL MW'SGROUND SURFACE ELEV. N/ADATE 8-8-89WEATHER KLIMHRS. DRILLING N/AHRS. MOVING N/AINSPECTOR D. DICKSONBORING NO. MW-2

| SAMPLING | | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|--------|----|-------|----|--|
| | 1ST 6" | 2ND 6" | 3RD 6" | | | | |
| | | | | | 0 | | AD-2 DRILL RIG # 2555 USING 6" ϕ AUGER |
| 1 | 4.6 | | | | | | |
| | 6.1 | 3 | 3 | 6 | 5 | | YELLOWISH BROWN SILTY FINE TO MEDIUM SAND. |
| | | | | | | | |
| 2 | 9.6 | | | | | | |
| | 11.1 | 4 | 4 | 5 | 10 | | REDDISH YELLOW FINE TO MEDIUM SANDY SILT. |
| | | | | | | | |
| 3 | 14.6 | | | | | | |
| | 16.1 | 3 | 5 | 3 | 15 | | PAGE YELLOW SILTY FINE TO MEDIUM SAND. |
| | | | | | | | |
| 4 | 19.6 | | | | | | |
| | 21.1 | 3 | 3 | 6 | 20 | | REDDISH YELLOW SILTY FINE TO MEDIUM SAND. |
| | | | | | | | |
| 5 | 24.6 | 4 | 4 | 5 | 25 | | YELLOW MICA SILTY FINE TO MEDIUM SAND |
| | 26.1 | | | | | | |
| | | | | | | | |
| 6 | 29.6 | | | | | | |
| | 31.1 | 4 | 5 | 5 | 30 | | YELLOW SILTY FINE TO MEDIUM SAND |
| | | | | | | | |
| 7 | 34.6 | | | | | | |
| | 36.1 | 6 | 8 | 10 | 35 | | OLIVE YELLOW MICA SILTY FINE TO MEDIUM SAND |
| | | | | | | | |
| 8 | 37.6 | | | | | | |
| | 41.1 | 13 | 20 | 18 | 40 | | YELLOW SILTY FINE TO MEDIUM SAND |

BORING TERMINATED @ 50.5'

BORING REFUSAL AUGER @ 50.5'

WATER TOB DEPTH 48.0' @ 4:30 P.M. 8-8-89

WATER 24 HR: DEPTH 41.1' @ 12:00 Noon 8-9-89

WATER LOSSES N/A

CASING SIZE N/A LENGTH 0

METHOD OF ADVANCING BORING

DEPTH

POWER AUGER

0 TO 50.5

HAND CHOP: W/MUD: W/WATER

— TO —

ROTARY DRILL: W/MUD: W/WATER

— TO —

DIAMOND CORE

— TO —

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE
1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

JOB NO. N/A STARTING TIME N/A
JOB NAME FLYASH LANDFILL MW'S GROUND SURFACE ELEV. _____
DATE 8-8-89 WEATHER LCM HRS. DRILLING N/A HRS. MOVING N/A
INSPECTOR D. DICKSON BORING NO. MW-2

| SAMPLING | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|----|-------|----|---|
| 1ST 6" | 2ND 6" | 3RD 6" | | | | |
| | | | | 0 | | |
| 9 | 44.6 | | | | | |
| | 46.1 | 16 | 21 | 22 | 5 | LT. OLIVE BRN. MICA. SILTY FINE TO MEDIUM SAND. |
| 10 | 49.6 | | | | | |
| | 50.2 | 23 | 50 | 72" | 50 | CT. OLIVE BRN. MICA. SILTY FINE TO COARSE SAND. AUGER REFUSAL @ 50.5' BORING TERMINATED SET MONITOR WELL PER ATTACHED SKETCH |
| | | | | | 55 | |
| | | | | | 60 | |
| | | | | | 65 | |
| | | | | | 70 | |
| | | | | | 5 | |
| | | | | | 0 | |

| | | | | |
|---|--|------------------------------|--|-----------|
| BORING TERMINATED @ 50.5' | | METHOD OF ADVANCING BORING | | DEPTH |
| BORING REFUSAL AUGER @ 50.5' | | POWER AUGER | | 0 TO 50.5 |
| WATER TOB DEPTH 48.0 ON 8-8-89 4:30 P.M. | | HAND CHOP. W/MUD. W/WATER | | — TO — |
| WATER 24 HR. DEPTH 41.1' ON 8-9-89 12:00 noon | | ROTARY DRILL. W/MUD. W/WATER | | — TO — |
| WATER LOSSES N/A | | DIAMOND CORE | | — TO — |
| CASING SIZE 4 1/4" LENGTH 0 | | | | |

DUKE POWER COMPANY - BELEWS CREEK STEAM STATION

AS-BUILT INSTALLATION SKETCH

Instrument No. MW-2

Station N/A

Offset N/A

By D. DICKSON

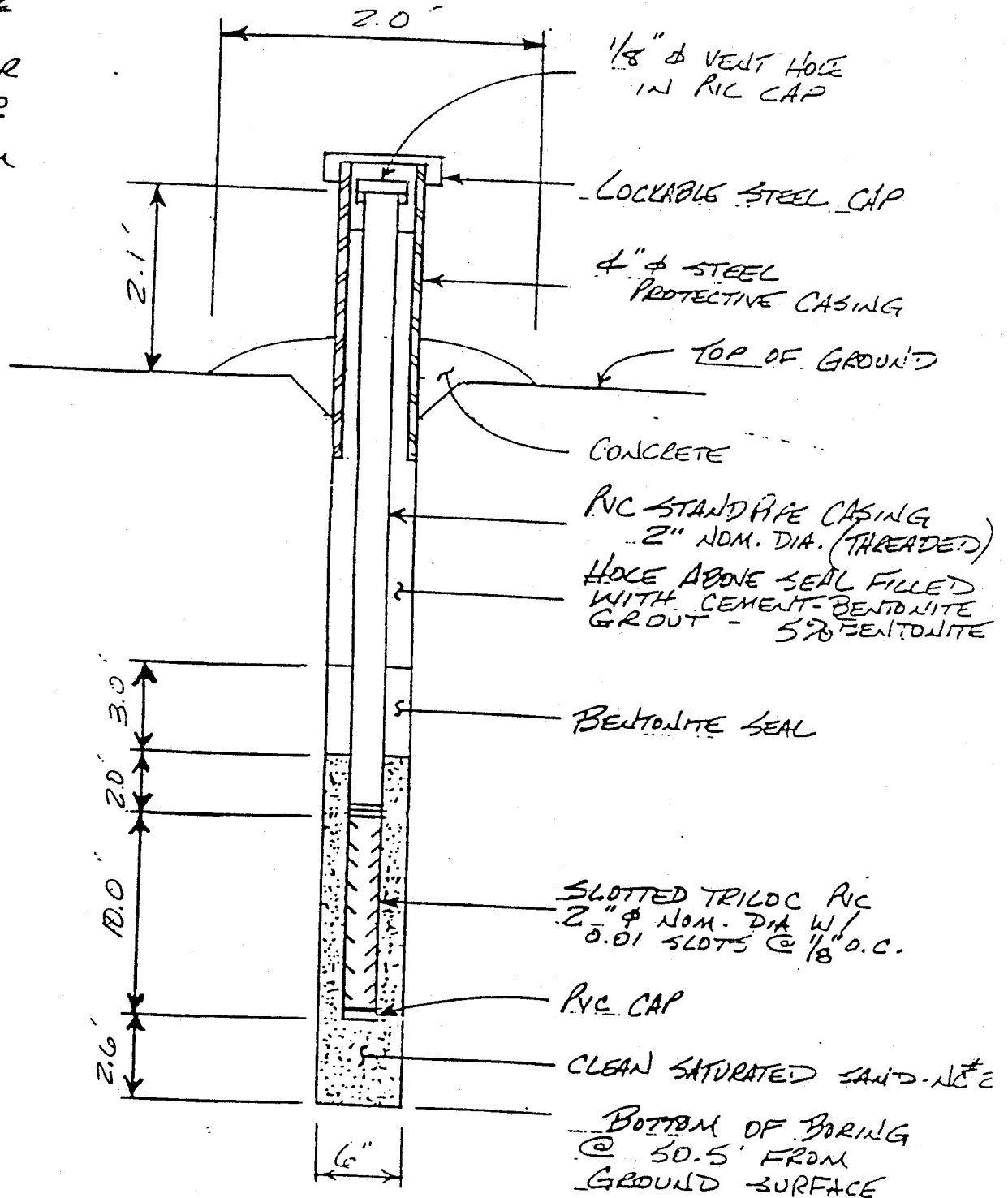
Date 8-11-89

NOTE :

NOT TO SCALE

INITIAL WATER
LEVEL RDG @
43.2' FROM
TOP OF PIPE
ON 8.9.89

T/PIPE ELEV.
15



N. C. Department of Human Resources
Division of Health Services

WELL COMPLETION RECORD

COMPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE
DEPARTMENT OF HUMAN RESOURCES, SOLID AND HAZARDOUS WASTE MANAGEMENT BRANCH
P. O. BOX 2091, RALEIGH, N.C. 27602

| | | |
|---|--|---|
| NAME OF SITE: <u>BELENS CREEK STEAM STATION</u> | | PERMIT NO.: <u>85-03</u> |
| ADDRESS: <u>P.O. BOX 557, WALNUT CREEK, NC 27052</u> | | OWNER (print): <u>DUKE POWER CO.</u> |
| DRILLING CONTRACTOR: <u>DUKE POWER CO.</u> | | REGISTRATION NO.: <u>921</u> |

Casing Type: THREADED TRILOC PVC dia. 2 in. Grout Depth: from 0 to 320 ft. - dia. 6.2
Casing Depth: from 0 to 37.0 ft. - dia. 2 in. Bentonite Seal: from 32.0 to 35.0 ft. - dia. 6.2
Screen Type: SLOT-010 TRILOC PVC dia. 2 in. Sand/Gravel PK: from 35.0 to 47.8 ft. - dia. 6.2
Screen Depth: from 37.0 to 47.0 ft. - dia. 2 in. Total Well Depth: from 0 to 47.8 ft. - dia. 6.2

Static Water Level: 38.8 feet from top of casing Date Measured 8/9
Yield (gpm): N/A Method of Testing: N/A Casing is 2.3 feet above land surface

| DRILLING LOG | | |
|--------------|----|-------------------------|
| DEPTH | | |
| FROM | TO | FORMATION DESCRIPTION |
| | | MW-3 |
| | | SEE ATTACHED SOIL TEST |
| | | BORING FIELD REPORT FOR |
| | | MW-3 @ FLYASH |
| | | LANDFILL |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| LOCATION SKETCH |
|--|
| (show distance to numbered roads, or other map reference points) |

REMARKS: SCREEN WAS PLACED IN MOST HYDRAULICALLY
CONDUCTIVE AQUIFER PER RALPH ROBERTS

DATE: 8-11-89 SIGNATURE: David L. Wilson

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BELEWS CREEK

SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLYASH LANDFILL MW'SGROUND SURFACE ELEV. N/ADATE 7-27-89WEATHER HOTHRS. DRILLING N/A HRS. MOVING N/AINSPECTOR D. DICKSON BORING NO. MW-3

| SAMPLING | | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|--------|----|-------|----|---------------------------------|
| | 1ST 6" | 2ND 6" | 3RD 6" | | | | |
| | | | | | 0 | | |
| 1 | 3.0 | | | | | | AD-2 DRILL RIG #2555 |
| | 4.5 | 3 | 3 | 4 | | | BORING WITH 6" AUGER |
| | | | | | | | YELLOWISH RED MICA. SILTY |
| | | | | | | | FINE TO MEDIUM SAND |
| | | | | | 5 | | |
| 2 | 8.0 | | | | | | |
| | 9.5 | 3 | 4 | 4 | | | REDDISH YELLOW MICA. FINE |
| | | | | | | | TO MEDIUM SANDY SILT. |
| | | | | | 10 | | |
| 3 | 13.0 | | | | | | |
| | 14.5 | 3 | 3 | 6 | | | REDDISH YELLOW FINE TO |
| | | | | | | | MEDIUM SANDY SILT. |
| | | | | | 15 | | |
| 4 | 18.0 | | | | | | |
| | 19.5 | 5 | 6 | 8 | | | PALE YELLOW FINE TO MEDIUM |
| | | | | | | | SANDY SILT. |
| | | | | | 20 | | |
| 5 | 23.0 | 24 | 50=5" | | | | |
| | 23.9 | | | | | | LT. GRAY MICA. SILTY FINE TO |
| | | | | | | | COARSE SAND |
| | | | | | 25 | | |
| 6 | 28.0 | | | | | | |
| | 28.5 | 30=6" | | | | | LT. GRAY MICA. SILTY FINE TO |
| | | | | | | | COARSE SAND. |
| | | | | | 30 | | |
| 7 | 33.0 | | | | | | |
| | 34.3 | 12 | 16 | 17 | | | PALE OCNE MICA. SILTY FINE |
| | | | | | | | TO MEDIUM SAND |
| | | | | | 35 | | |
| 8 | 38.0 | | | | | | |
| | 39.5 | 7 | 10 | 11 | | | PALE YELLOW MICA. SILTY FINE |
| | | | | | | | TO MEDIUM SAND. |
| | | | | | 40 | | |

BORING TERMINATED @ 47.8BORING REFUSAL AUGER @ 47.8'WATER TOB DEPTH 47.0' @ 4:00 P.M. 7-27-89WATER 24 HR. DEPTH 36.1' @ 7:30 A.M. 7-28-89WATER LOSSES N/ACASING SIZE N/ALENGTH 0

METHOD OF ADVANCING BORING

DEPTH

POWER AUGER

0 TO 47.8

~~HAND CHOP. W/MUD. W/WATER~~~~— TO —~~~~ROTARY DRILL. W/MUD. W/WATER~~~~— TO —~~~~DIAMOND CORE~~~~— TO —~~

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE
1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

FORM M-26C

REVISION 2

PAGE 2 OF 2

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BREWS CREEK

SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLYASH LANDFILL MW'SGROUND SURFACE ELEV. N/ADATE 7-27-89WEATHER HOTHRS. DRILLING N/AHRS. MOVING N/AINSPECTOR D. DICKSONBORING NO. MW-3

SAMPLING

SCALE

UD

SOIL CLASSIFICATION AND REMARKS

9 43.0

41.4

12

32

50

5"

PALE OLIVE MICA. SILTY FINE
TO MEDIUM SAND.

— AUGER REFUSAL @ 47.8' —

BORING TERMINATED

SET MONITOR WELL
PER ATTACHED SKETCH

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE
1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED @ 47.8'

BORING REFUSAL AUGER @ 47.8'

WATER TOB DEPTH 47.0' @ 4:00 P.M. 7-27-89

WATER 24 HR: DEPTH 36.1' @ 7:30 A.M. 7-28-89

WATER LOSSES N/A

CASING SIZE N/A LENGTH 0

METHOD OF ADVANCING BORING

DEPTH

POWER AUGER

0 TO 47.8'

HAND CHOP: W/MUD: W/WATER

— TO —

ROTARY DRILL: W/MUD: W/WATER

— TO —

DIAMOND CORE

— TO —

DUKE POWER COMPANY - BELEWS CREEK STEAM STATION

AS-BUILT INSTALLATION SKETCH

Instrument No. MK1-3

Station N/A

Offset N/A

By D. DICKSON

Date 8-11-89

NOTE:

NOT TO SCALE

W/THAL WATER
LEVEL RDG @

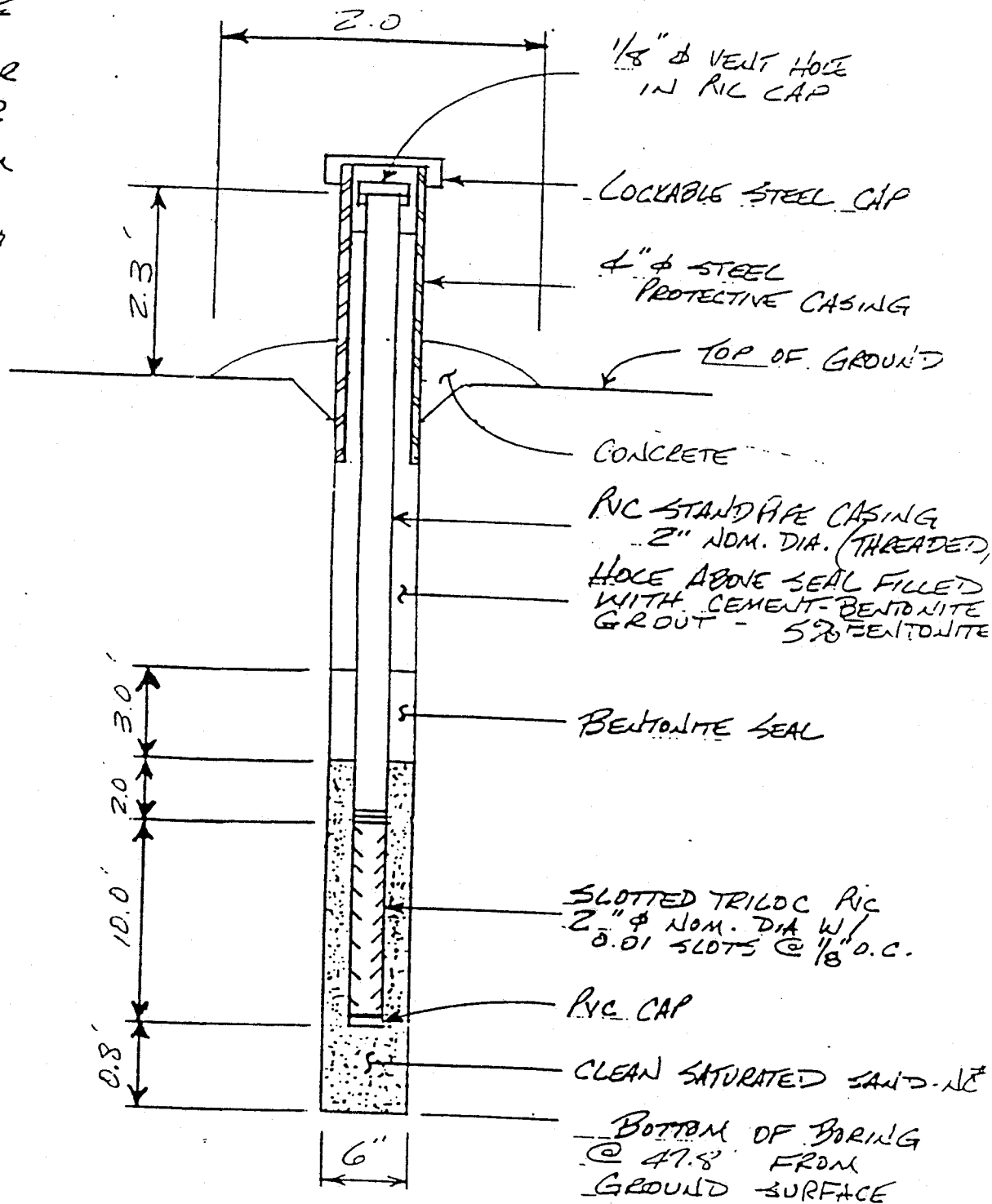
38.8' FROM

TOP/PIPE

ON 8.9.89

T/APE ELEV.

15



N. C. Department of Human Resources
Division of Health Services

WELL COMPLETION RECORD

COMPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE
DEPARTMENT OF HUMAN RESOURCES, SOLID AND HAZARDOUS WASTE MANAGEMENT BRANCH
P. O. BOX 2091, RALEIGH, N.C. 27602

| | | |
|--|--|--|
| NAME OF SITE: <u>BELEWS CREEK STEAM STATION</u> | | PERMIT NO.: <u>85-03</u> |
| ADDRESS: <u>P.O. BOX 557, WALNUT COVE, NC 27052</u> | | OWNER (print): <u>DUKE POWER CO</u> |
| DRILLING CONTRACTOR: <u>DUKE POWER CO.</u> | | REGISTRATION NO.: <u>921</u> |

Casing Type: THREADED TRILOC PVC dia. 2 in. Grout Depth: from 0 to 23.2 ft. - dia. 6.2
Casing Depth: from 0 to 23.2 ft. - dia. 2 in. Bentonite Seal: from 23.2 to 26.2 ft. - dia. 6.2
Screen Type: SLOT.910 TRILOC PVC dia. 2 in. Sand/Gravel PK: from 26.2 to 39.5 ft. - dia. 6.2
Screen Depth: from 23.2 to 39.5 ft. - dia. 2 in. Total Well Depth: from 0 to 39.5 ft. - dia. 6.2
Static Water Level: 17.5 feet from top of casing Date Measured 8/19
Yield (gpm): N/A Method of Testing: N/A Casing is 1.8 feet above land s

| DRILLING LOG | | |
|--------------|----|--------------------------------|
| DEPTH | | FORMATION DESCRIPTION |
| FROM | TO | |
| | | <u>MW-4</u> |
| | | <u>SEE ATTACHED SOIL TEST</u> |
| | | <u>BORING FIELD REPORT FOR</u> |
| | | <u>MW-4 @ FLYASH</u> |
| | | <u>CANDFILL</u> |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| LOCATION SKETCH |
|--|
| (show distance to numbered roads, or other map reference p |

REMARKS: SCREEN WAS PLACED IN MOST HYDRAULICALLY
CONDUCTIVE AQUIFER PER RALPH ROBERTS

DATE: 8-11-87 SIGNATURE: David L. Pickens

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BELEVUS CREEK

SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLYASH LANDFILL M/L'SGROUND SURFACE ELEV. N/ADATE 8-3-87WEATHER HOTHRS. DRILLING N/AHRS. MOVING N/AINSPECTOR D. DICKSONBORING NO. M/L-4

| SAMPLING | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|------------------------------------|--------|--------|----|-------|----|--------------------------------------|
| 1ST 6" | 2ND 6" | 3RD 6" | | | | |
| | | | | 0 | | AD-2 DRILL RIG #2555 |
| | | | | | | USING 6" Ø AUGER |
| 1 | 3.5 | | | | | REDDISH YELLOW FINE TO MEDIUM |
| | 5.0 | 8 | 9 | 10 | 5 | SANDY SILT. |
| | | | | | | |
| 2 | 8.5 | | | | | YELLOW SILTY FINE TO MEDIUM SAND |
| | 10.0 | 23 | 26 | 16 | 10 | |
| | | | | | | |
| 3 | 13.5 | | | | | YELLOW SILTY FINE TO COARSE SAND |
| | 15.0 | 22 | 50 | 3" | 15 | |
| | 14.3 | | | | | |
| | | | | | | |
| 4 | 18.5 | | | | | OLIVE FINE TO MEDIUM SANDY SILT |
| | 20.0 | 11 | 23 | 23 | 20 | |
| | | | | | | |
| 5 | 23.5 | | | | | OLIVE FINE TO MEDIUM SANDY SILT |
| | 25.0 | 6 | 17 | 31 | 25 | SPLIT BARREL SAMPLER RETURNED WET. |
| | | | | | | |
| 6 | 28.5 | | | | | OLIVE BRN. SILTY FINE TO MEDIUM SAND |
| | 30.0 | 13 | 18 | 28 | 30 | |
| | | | | | | |
| 7 | 33.5 | | | | | OLIVE BRN. SILTY FINE TO MEDIUM SAND |
| | 34.5 | 25 | 50 | 6" | 35 | |
| | | | | | | |
| 8 | 38.5 | | | | | DARK OLIVE SILTY FINE TO COARSE |
| | 38.9 | 50 | 5 | | 40 | SAND AND FLAKY SPHERULY WEATHERED |
| | | | | | | ROCK FRAGMENTS |
| BORING TERMINATED @ 39.5' | | | | | | |
| BORING REFUSAL AUGER @ 39.5' | | | | | | |
| WATER TOB DEPTH 34.5' ON 8-3-87 | | | | | | |
| WATER 24 HR. DEPTH 15.7' ON 8-9-87 | | | | | | |
| WATER LOSSES N/A | | | | | | |
| CASING SIZE N/A LENGTH 0 | | | | | | |
| METHOD OF ADVANCING BORING | | | | | | DEPTH |
| POWER AUGER | | | | | | 0 TO 39.5 |
| HAND CHOP: W/MUD: W/WATER | | | | | | — TO — |
| ROTARY DRILL: W/MUD: W/WATER | | | | | | — TO — |
| DIAMOND CORE | | | | | | — TO — |

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

* AUGER REFUSAL @ 39.5' - BORING TERMINATED - SEE ATTACHED SKET

DUKE POWER COMPANY - BELEWS CREEK STEAM STATION

AS-BUILT INSTALLATION SKETCH

Instrument No. MW-4Station N/AOffset N/ABy D. DICKSONDate 8-11-87NOTE:

NOT TO SCALE

INITIAL WATER
LEVEL RDG @

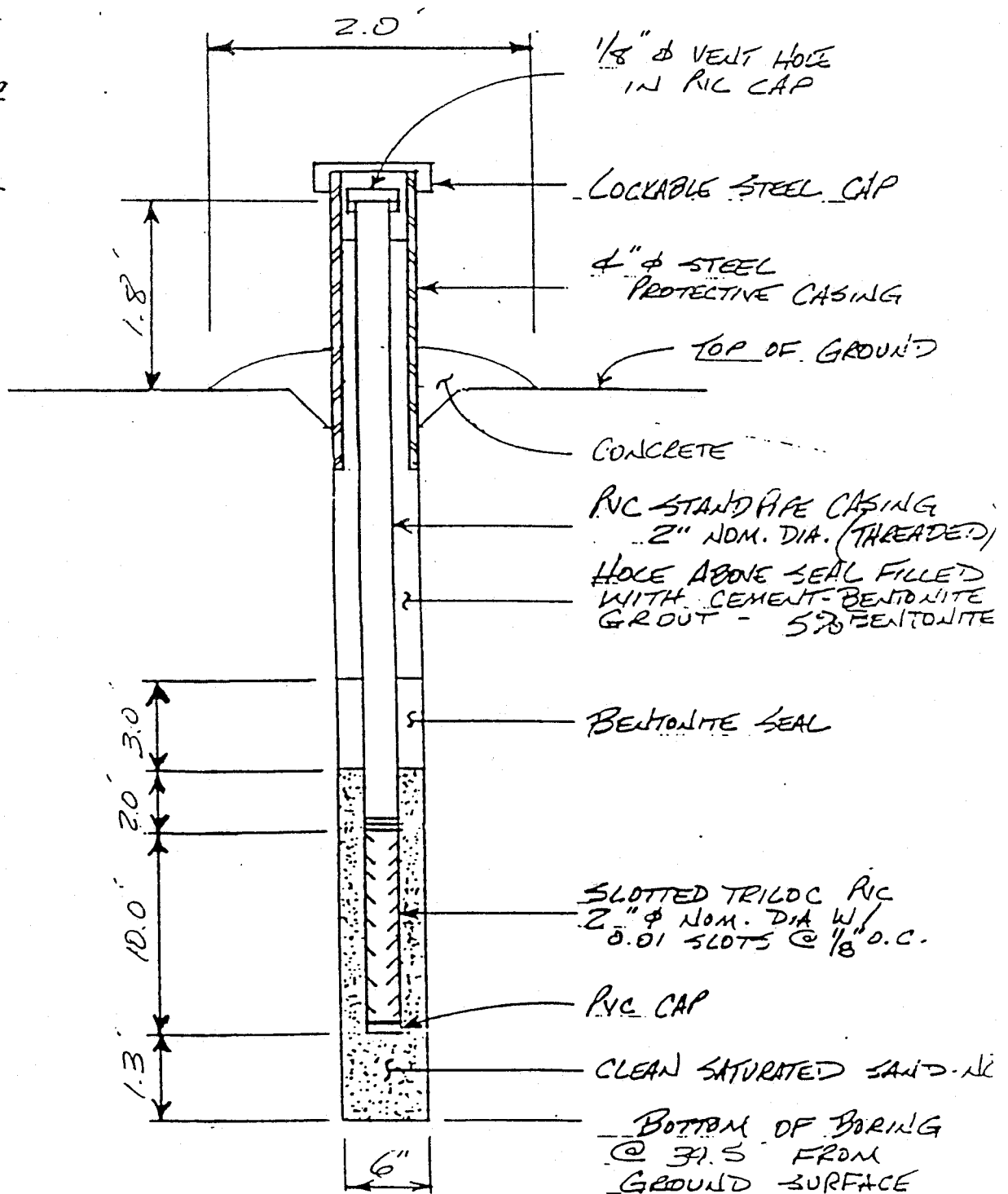
17.5' FROM

TOP/PIPE

ON 8-9-87

T/APE ELEV.

15



N. C. Department of Human Resources
Division of Health Services

WELL COMPLETION RECORD

COMPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE
DEPARTMENT OF HUMAN RESOURCES, SOLID AND HAZARDOUS WASTE MANAGEMENT BRANCH
P. O. BOX 2091, RALEIGH, N.C. 27602

| | | |
|--|--|--|
| NAME OF SITE: <u>BELEWS CREEK STREAM STATION</u> | | PERMIT NO.: <u>85-03</u> |
| ADDRESS: <u>P.O. BOX 557, WALNUT COVE, NC 27052</u> | | OWNER (print): <u>DUKE POWER CO</u> |
| DRILLING CONTRACTOR: <u>DUKE POWER CO.</u> | | REGISTRATION NO.: <u>921</u> |

Casing Type: THREADED TRILOC PVC dia. 2 in.
Casing Depth: from 0 to 43.3 ft. - dia. 2 in.
Screen Type: SLOT-010 TRILOC PVC dia. 2 in.
Screen Depth: from 43.3 to 58.3 ft. - dia. 2 in.
Grout Depth: from 0 to 43.3 ft. - dia. 6.3 in.
Bentonite Seal: from 43.3 to 46.3 ft. - dia. 6.3 in.
Sand/Gravel PK: from 46.3 to 60.5 ft. - dia. 6.3 in.
Total Well Depth: from 0 to 60.5 ft. - dia. 6.3 in.
Static Water Level: 28.2 feet from top of casing
Date Measured 8/9
Yield (gpm): N/A Method of Testing: N/A
Casing is 1.7 feet above land surface

| DRILLING LOG | | |
|--------------|----|--------------------------------|
| DEPTH | | |
| FROM | TO | FORMATION DESCRIPTION |
| | | <u>MW-5</u> |
| | | <u>SEE ATTACHED SOIL TEST</u> |
| | | <u>BORING FIELD REPORT FOR</u> |
| | | <u>MW-5 @ FLYASH</u> |
| | | <u>LANDFILL.</u> |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

LOCATION SKETCH
(show distance to numbered roads, or other map reference points)

REMARKS: SCREEN WAS PLACED IN THE MOST
HYDRAULICALLY CONDUCTIVE AQUIFER
PER RALPH ROBERTS

DATE: 3-11-59 SIGNATURE: David L. Siler

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BELENS CREEK
SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLYASH LANDFILL MW'sGROUND SURFACE ELEV. N/ADATE 8-8-89WEATHER WARMHRS. DRILLING N/AHRS. MOVING N/AINSPECTOR D. JACKSONBORING NO. MW-3

| SAMPLING | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|--------|-------|----|---|
| | 1ST 6" | 2ND 6" | 3RD 6" | | | |
| | | | | 0 | | AD. 2 DRILL RIG #2555 USING 6" AUGER |
| 1 | 3.7 | | | | | |
| | 5.2 | 6 | 8 | 7 | 5 | YELLOWISH RED FINE TO MEDIUM SANDY SILT. |
| 2 | 8.7 | | | | | |
| | 10.2 | 6 | 10 | 10 | 10 | YELLOWISH RED FINE TO MEDIUM SANDY SILT |
| 3 | 13.7 | | | | | |
| | 15.2 | 4 | 5 | 6 | 15 | BROWNISH YELLOW FINE TO MEDIUM SANDY SILT. |
| 4 | 18.7 | | | | | |
| | 20.2 | 3 | 5 | 5 | 20 | YELLOWISH BROWN FINE TO MEDIUM SANDY SILT. |
| 5 | 23.7 | | | | | |
| | 25.2 | 3 | 5 | 6 | 25 | LT. OLIVE BROWN FINE TO MEDIUM SANDY SILT |
| 6 | 28.7 | | | | | |
| | 30.2 | 7 | 10 | 10 | 30 | LT. GRAY FINE TO MEDIUM SANDY SILT |
| 7 | 33.7 | | | | | |
| | 35.2 | 5 | 8 | 14 | 35 | LT. GRAY FINE TO MEDIUM SANDY SILT |
| 8 | 39.7 | | | | | |
| | 40.2 | 17 | 28 | 29 | 40 | OLIVE YELLOW SILTY FINE TO MEDIUM SAND. |

BORING TERMINATED

@ 60.5'

BORING REFUSAL

AUGER @ 60.5'

WATER TOB DEPTH 54.0' @ 10:30 A.M. 8-8-89

WATER 24 HR. DEPTH 26.5' @ 2:00 P.M. 8-9-89

WATER LOSSES

N/A

CASING SIZE

N/A

LENGTH

0

METHOD OF ADVANCING BORING

DEPTH

POWER AUGER

0 TO 60.5

HAND CHOP: W/MUD: W/WATER

— TO —

ROTARY DRILL: W/MUD: W/WATER

— TO —

DIAMOND CORE

— TO —

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE
1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BELEWS CREEK

SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLYASH LANDFILL MW'SGROUND SURFACE ELEV. N/ADATE 8-8-89WEATHER WARMHRS. DRILLING N/A HRS. MOVING N/AINSPECTOR D. DICKSON BORING NO. MW-5

| SAMPLING | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|----|-------|----|---|
| 1ST 6" | 2ND 6" | 3RD 6" | | | | |
| | | | | 40 | | |
| 9 | 43.7 | 14 | 17 | 45 | | LT. OLIVE BRN. SILTY FINE TO MEDIUM SAND |
| 10 | 48.7 | 8 | 15 | 50 | | LT. OLIVE BRN. FINE TO MEDIUM SANDY SILT |
| 11 | 53.7 | 5 | 8 | 55 | | LT. OLIVE BRN. FINE TO MEDIUM SANDY SILT |
| 12 | 58.7 | 18 | 23 | 60 | | DLD LT. OLIVE BRN. SILTY FINE TO MEDIUM SAND. COARSE SAND WITH SEVERELY WEATHERED ROCK GRAVELS. AUGER REFUSAL @ 60.5' BORING TERMINATED SET MONITOR WELL PER ATTACHED SKETCH. |
| | | | | 65 | | |
| | | | | 0 | | |
| | | | | 5 | | |
| | | | | 0 | | |

| | | | |
|--|--|--------------------------------|-----------|
| BORING TERMINATED @ 60.5' | | METHOD OF ADVANCING BORING | DEPTH |
| BORING REFUSAL AUGER @ 60.5' | | POWER AUGER | 0 TO 60.5 |
| WATER TOB DEPTH 54.0 @ 10:30 A.M. 8-8-89 | | HAND CHOP - W/MUD - W/WATER | - TO - |
| WATER 24 HR. DEPTH 26.5 @ 2:00 P.M. 8-8-89 | | ROTARY DRILL - W/MUD - W/WATER | - TO - |
| WATER LOSSES N/A | | DIAMOND CORE | - TO - |
| CASING SIZE N/A LENGTH 0 | | | |

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

AS-BUILT INSTALLATION SKETCH

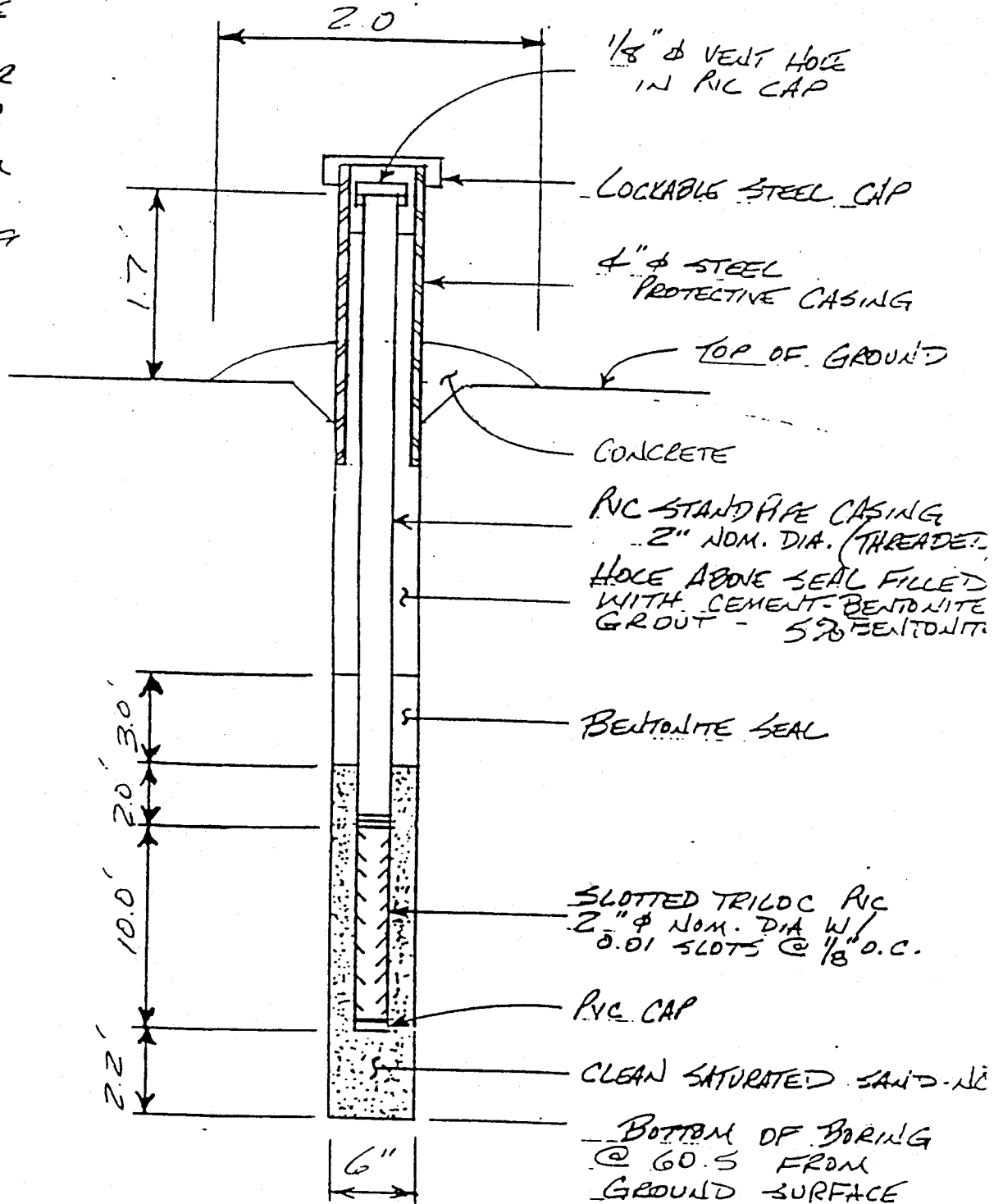
Instrument No. MW-5 Station N/A Offset N/A
 By D. DICKSON Date 8-11-89

NOTE:

NOT TO SCALE


INITIAL WATER
 LEVEL RDG @
 28.2' FROM
 TOP/PIPE
 ON 8-9-89

T/APE ELEV.
 15



| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|-------------------|---|------|-------|------------|
| 0 | n/a | | | | | Advanced with 7-1/4" OD Augers. | | | 835.2 |
| | | | 3.0' | | | | | | |
| | | S1 | | 2 | | S1, N=14, Yellowish red, slightly micaceous, fine SILTY-SANDY CLAY. | CL | | |
| | | | 4.5' | 6 | | | | | |
| 5 | | | | 8 | | | | | 830.2 |
| | | | 8.0' | | | | | | |
| | | S2 | | 2 | | S2, N=11, Yellowish red, slightly micaceous, fine SILTY-SANDY CLAY. | CL | | |
| | | | 9.5' | 5 | | | | | |
| 10 | | | | 6 | | | | | 825.2 |
| | | | | | | Large bag sample taken from auger cuttings, 8.0' to 18.0". | | | |
| | | | 13.0' | | | | | | |
| | | S3 | | 2 | | S3, N=12, Yellowish red, slightly micaceous, fine SILTY-SANDY CLAY. | CL | | |
| | | | 14.5' | 5 | | | | | |
| 15 | | | | 7 | | | | | 820.2 |
| | | | | | | | | | |
| | | | 18.0' | | | | | | |
| | | S4 | | 2 | | S4, N=7, Yellowish brown, slightly micaceous, fine SANDY SILT. | ML | | |
| | | | 19.5' | 3 | | | | | |
| | | | | 4 | | | | | |
| 20 | | | | | | | | | 815.2 |

Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test

| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|-------|---------------|-------|-------|---|----------------|---------------------------------------|-----|-------------|
| | | Depth of (ft) | | | Client: Duke Power Company | | Augers: | | n/a |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Ash Landfill | | Split spoon 1: | | Automatic |
| 05/03/00 | 4:00p | 0.0 | 48.4' | 28.8' | Project No.: 00003.08.0080.00.00000 | | Split spoon 2: | | Automatic |
| 05/10/00 | 8:00a | 36.5' | 48.4' | 27.3' | Location: Belews Creek, North Carolina | | Core Barrel ID: | n/a | |
| | | | | | Drilling Contractor: DE&S | | Core Barrel Type: | n/a | |
| | | | | | Drillers: Jim Barker/Ricky Dickard | Drill Rig: CMS | Boring Logged By: CAMedlin/ MFS | | |
| Date Boring Completed: | | 05/03/00 | | |  Duke Engineering & Services. <i>A Duke Energy Company</i> | | BORING MW-6 Page 1 of 3 | | |
| AUGER REFUSAL @ | | 48.4' | | | | | | | |
| Total Depth of Hole: | | 48.4' | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|-------------------|---|------|-------|------------|
| 20 | n/a | | | | | | | | 815.2 |
| | | | | | | Large Bag Sample from auger cuttings, 18.0' to 28.0'. | | | |
| | | | 23.0' | | | | | | |
| | | S5 | | 2 | | S5, N=7, Yellowish brown, slightly micaceous, fine SANDY SILT . | ML | | |
| | | | 24.5' | 3 | | | | | |
| 25 | | | | 4 | | | | | 810.2 |
| | | | | | | Screened Interval from 24.0' to 34.0'. | | | |
| | | | | | | Result of Slug Test: $k=2.1E-04$ cm/sec. | | | |
| | | | 28.0' | | | | | | |
| | | S6 | | 2 | | S6, N=7, Yellowish brown, slightly micaceous, fine SANDY SILT . | ML | | |
| | | | 29.5' | 2 | | | | | |
| 30 | | | | 5 | | | | | 805.2 |
| | | | | | | Large Bag Sample from auger cuttings, 28.0' to 38.0'. | | | |
| | | | 33.0' | | | | | | |
| | | S7 | | 8 | | S7, N=37, Yellowish brown, slightly micaceous, fine SANDY SILT . | ML | | |
| | | | 34.5' | 14 | | | | | |
| 35 | | | | 23 | | | | | 800.2 |
| | | | | | | | | | |
| | | | 38.0' | | | | | | |
| | | S8 | | 3 | | S8, N=15, Yellowish brown, slightly micaceous, fine SANDY SILT . | ML | | |
| | | | 39.5' | 6 | | | | | |
| 40 | | | | 9 | | | | | 795.2 |
| | | | | | | | | | |
| | | | 43.0' | | | | | | |
| | | S9 | | 5 | | S9, N=42, Yellowish brown, slightly micaceous, fine SANDY SILT . | ML | | |
| | | | 44.5' | 13 | | | | | |
| 45 | | | | 29 | | | | | 790.2 |

Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test

Ground Surface Elev. (ft) 935.2

Date Boring Completed: 5/3/2000


Boring Logged By: CAM/MFS

Duke Engineering & Services.
A Duke Energy Company

BORING MW-6


Page 2 of 3


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|-------------------|--|------|-------|------------|
| 45 | n/a | | | | | | | | 790.2 |
| | | | 48.0' | | | | | | |
| | | S9 | 48.1' | 50/2" | | S9, N=50/2", Yellowish brown, slightly micaceous, fine SILTY SAND , weathered rock. Auger Refusal @ 48.4' Boring Terminated @ 48.4' | SM | | |
| 50 | | | | | | | | | 785.2 |
| | | | | | | Monitoring Well Installed. See Installation Sheet for Details. Screened Interval from 24.0' to 34.0'. | | | |
| 55 | | | | | | | | | 780.2 |
| 60 | | | | | | | | | 775.2 |
| 65 | | | | | | | | | 770.2 |
| 70 | | | | | | | | | 765.2 |

| | | | |
|--|--------------|---|-----------------------------------|
| Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test | | | |
| Ground Surface Elev. (ft) | 935.2 |  A Duke Energy Company | BORING MW-6 Page 3 of 3 |
| Date Boring Completed: | 5/3/2000 | | |
| Boring Logged By: | CAMedlin/MFS | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|-------------------|---|-----------|-------|------------|
| 0 | | | | | n/a | Advanced with 7-1/4" OD Augers. FLY ASH from 0 to 4.5'. | | | 786.8 |
| 5 | | UD1 | 4.5' | | | UD1, Pushed 2.0'; REC=1.9'. | | | 781.8 |
| | | S1 | 6.0' | 2 3 3 | | S1, N=6, Brown, slightly micaceous, very fine SANDY SILT. | ML | | |
| 10 | | UD2 | 9.5' | | | UD2, Pushed 2.0', REC=2.0'. Lab tests include G-Grain Size, Soil Classification (USCS), A-Atterburg Limits, Total Porosity, and Saturated Hydraulic Conductivity. LL=51, PI=38; UW=64.7pcf; SG=2.86; Por=0.64; $k=2.86E-06$ cm/sec. | CH (G) | | 776.8 |
| | | S2 | 13.0' | 3 4 4 | | S2, N=8, Yellowish brown, slightly micaceous, very fine SANDY SILT. | ML | | |
| 15 | | S3 | 14.5' | 2 4 9 | | S3, N=13, Yellowish brown, slightly micaceous, very fine SANDY SILT. | ML | | 771.8 |
| 20 | | | 19.5' | | | Large bag sample taken from auger cuttings, 15.0' to 25.0'. | | | 766.8 |

Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test


| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|-------|---------------|-------|-------|---|----------------|--|-----|-------------|
| | | Depth of (ft) | | | Client: Duke Power Company | | Augers: | | n/a |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Ash Landfill - Permit | | Split spoon 1: | | Automatic |
| 05/03/00 | 2:00p | 0.0 | 51.5' | 34.5' | Project No.: 00003.08.0080.00.00000 | | Split spoon 2: | | Automatic |
| 05/10/00 | 8:00a | 44.0' | 51.5' | 34.3' | Location: Belews Creek, North Carolina | | Core Barrel ID: | n/a | |
| | | | | | Drilling Contractor: DE&S | | Core Barrel Type: | n/a | |
| | | | | | Drillers: Jim Barker/Ricky Dickard | Drill Rig: CMS | Boring Logged By: CAMedlin/MFS | | |
| Date Boring Completed: | | 05/02/00 | | |  Duke Engineering & Services. <i>A Duke Energy Company</i> | | BORING MW2-1 Page 1 of 3 | | |
| AUGER REFUSAL @ | | 51.5' | | | | | | | |
| Total Depth of Hole: | | 51.5' | | | | | | | |


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (In.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|--|--------------------|---------------|----------------------|---|-------------------|---|-----------|-------|------------|
| 20 | n/a | | | | | | | | 766.8 |
| | | UD3 | 21.5' | | | UD3, Pushed 2.0', REC=2.0' | | | |
| | | S4 | 23.0' | 10 13 19 | | S4, N=32, Yellowish brown, slightly micaceous, very fine SANDY SILT. | ML | | |
| | | | 24.5' | | | | | | |
| 25 | | S5 | 26.0' | 13 18 20 | | S5, N=38, Yellowish brown, slightly micaceous, very fine SANDY SILT. | ML | | 761.8 |
| | | | 29.5' | | | | | | |
| 30 | | S6 | 30.5' | 19 50/6" | | S6, N=50/6", Yellowish brown, slightly micaceous, very fine SANDY SILT. Large bag sample taken from auger cuttings, 25.0' to 35.0'. Screened Interval from 31.5' to 41.5'. Result of Slug Test: $k=9.7E-05$ cm/sec | ML | | 756.8 |
| | | | 34.5' | | | | | | |
| 35 | | S7 | 35.7' | 11 22 50/3" | | S7, N=77/9", Yellowish brown, slightly micaceous, very fine SAND. (G,A) LL=30, PI=2 | SM (S) | | 751.8 |
| | | | 39.5' | | | | | | |
| 40 | | S8 | 39.9' | 50/3" | | S8, N=50/3", Yellowish brown, slightly micaceous, very fine SILTY SAND, weathered rock. Large bag sample taken from auger cuttings, 35.0' to 45.0'. | SM | | 746.8 |
| | | | 44.5' | | | | | | |
| 45 | | S9 | 44.9' | 50/5" | | S9, N=50/5", Yellowish brown, slightly micaceous, fine SILTY SAND, weathered rock. | SM | | 741.8 |
| Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test | | | | | | | | | |
| Ground Surface Elev. (ft) | | 786.8 | |  A Duke Energy Company | | BORING MW2-1 | | | |
| Date Boring Completed: | | 5/2/2000 | | | | | | | |
| Boring Logged By: | | CAM/MFS | | | | | | | |
| Page 2 of 3 | | | | | | | | | |

| | | | |
|--|----------|---|--|
| Sample Types S:split spoon UD:3" dia. thin wall tube | | Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test | |
| Ground Surface Elev. (ft) | 786.8 |  Duke Engineering & Services. <i>A Duke Energy Company</i> | BORING MW2-1 Page 3 of 3 |
| Date Boring Completed: | 5/2/2000 | | |
| Boring Logged By: | CAM/MFS | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|-------------------|---|------|-------|------------|
| 0 | n/a | | | | | | | | 784.7 |
| 5 | | S1 | 4.1' | 2 | | S1, N=4/18", Light gray, very fine, wet FLY ASH. | | | 779.7 |
| | | | 6.1' | 3 | | | | | |
| | | | | 1/12" | | | | | |
| 10 | | S2 | 9.1' | | | Fly ash from 0' to ~9.4'. | | | |
| | | | 10.6' | 3 | | S2, N=11, Yellowish brown, slightly micaeous, very fine SANDY SILT. | ML | | 774.7 |
| | | | | 5 | | | | | |
| | | | | 6 | | | | | |
| 15 | | UD1 | 14.1' | | | Large bag sample collected from auger cuttings, 10.0' to 20.0'. | | | |
| | | | 16.1' | | | UD1, Pushed 2.0', REC=2.0'. | | | 769.7 |
| | | S3 | | 9 | | | | | |
| | | | 17.6' | 5 | | S3, N=11, Yellowish brown, slightly micaeous, very fine SANDY SILT. | ML | | |
| | | | | 6 | | | | | |
| | | | 19.1' | | | | | | |
| 20 | | UD2 | | | | UD2, Pushed 2.0', REC=2.0'. | | | 764.7 |


Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test

| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|-------|---------------|-------|-------|---|------------|--|-----|-------------|
| | | Depth of (ft) | | | Client: Duke Power Company | | Augers: | | n/a |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Ash Landfill - Permit | | Split spoon 1: | | Automatic |
| 05/03/00 | 9:00a | 0.0 | 64.1' | | Project No.: 00003.08.0080.00.00000 | | Split spoon 2: | | Automatic |
| 05/10/00 | 9:00a | 39.5' | 64.1 | 30.4' | Location: Belews Creek, North Carolina | | Core Barrel ID: | n/a | |
| | | | | | Drilling Contractor: DE&S | | Core Barrel Type: | n/a | |
| | | | | | Drillers: Jim Barker/Ricky Dickard | Drill Rig: | Boring Logged By: CAMedlin/MFS | | |
| Date Boring Completed: | | 05/02/00 | | |  Duke Engineering & Services. <i>A Duke Energy Company</i> | | BORING MW2-2 Page 1 of 3 | | |
| AUGER REFUSAL @ | | n/a | | | | | | | |
| Total Depth of Hole: | | 65.6' | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|--|--------------------|---------------|----------------------|---------------|-------------------|--|-----------|-------|------------|
| 20 | n/a | | | | | | | | 764.7 |
| | | | 21.1' | | | | | | |
| | | S4 | | 2 | | S4, N=16, Yellowish brown, slightly micaceous, fine SILTY SAND , weathered rock. | SM | | |
| | | | 22.6' | 6 | | | | | |
| | | | | 10 | | | | | |
| | | | 24.1' | | | Large bag sample collected from auger cuttings, 20.0' to 30.0'. | | | |
| 25 | | UD3 | | | | UD3, Pushed 1.4', REC=1.4'. Lab Tests include G-Grain Size, Soil Classification (USCS). A-Atterburg Limits, Total Porosity, and Saturated Hydraulic Conductivity. LL=NP, PI=NP; UW=89.8pcf; SG=2.65; Por=0.46; k=1.81E-04 cm/sec. | ML (G) | | 759.7 |
| | | | 25.5' | | | | | | |
| | | S5 | | 24 | | S5, N=43, Yellowish brown, slightly micaceous, fine SILTY SAND , weathered rock. | | | |
| | | | 27.0' | 23 | | | | | |
| | | | | 20 | | Screened Interval from 27.0' to 37.0'. Result of Slug Test: k=3.1E-04 cm/sec. | | | |
| | | | 29.1' | | | | | | |
| 30 | | UD4 | | | | UD4, Pushed 2.0', REC=1.1'. | | | 754.7 |
| | | | 31.1' | | | | | | |
| | | S6 | | 3 | | S6, N=10, Yellowish brown, slightly micaceous, very fine SANDY SILT . | ML | | |
| | | | 32.6' | 4 | | | | | |
| | | | | 6 | | | | | |
| | | | 34.1' | | | | | | |
| 35 | | UD5 | | | | UD5, Pushed 2.0', REC=2.0'. Lab Test include G-Grain Size, soil Classification (USCS). A-Atterburg Limits, Total Porosity, and Saturated Hydraulic Conductivity. LL=48, PI=19; UW=86.1pcf; SG=2.73; Por=0.49; k=6.63E-05 cm/sec. | ML (G) | | 749.7 |
| | | | 36.1' | | | | | | |
| | | S7 | | 8 | | S7, N=26, Brown, slightly micaceous, vrry fine SANDY SILT , weathered rock. | ML | | |
| | | | 37.6' | 12 | | | | | |
| | | | | 14 | | Large bag sample taken from auger cuttings, 30.0' to 40.0'. | | | |
| | | | 39.1' | | | | | | |
| | | UD6 | | | | UD6, Pushed 0.4', REC=0.0'. | | | |
| | | | 39.5' | | | | | | |
| 40 | | S8 | | 29 | | S8, N=25, Brown, slightly micaceous, very fine SILTY SAND , weathered rock. | SM | | 744.7 |
| | | | 41.0' | 14 | | | | | |
| | | | | 11 | | | | | |
| | | | 44.1' | | | | | | |
| 45 | | S9 | | 1 | | S9, N=29, Olive gray, slightly micaceous, very fine SANDY SILT . (G,A), LL=36, PI=5. | SM (G) | | 739.7 |
| | | | | 12 | | | | | |
| Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterburg Limit U:unconfined compressive strength test | | | | | | | | | |
| Ground Surface Elev. (ft) | | | | | | | | | |
| Date Boring Completed: | | 5/2/2000 | | | | | | | |
| Boring Logged By: | | CAM/MFS | | | | | | | |
|  A Duke Energy Company | | | | | | BORING MW2-2 | | | |
| | | | | | | Page 2 of 3 | | | |


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|----------------|-------------------|---|------|-------|------------|
| 45 | n/a | | | 17 | | | | | 739.7 |
| 50 | | S10 | 49.1' 49.6' | 50/6" | | S10, N=50/6", Olive brown, slightly micaceous, very fine SANDY SILT, weathered rock. | ML | | |
| 55 | | S11 | 54.1' 55.6' | 15 25 35 | | S11, N=60, Yellowish brown, slightly micaceous, very fine SANDY SILT. | ML | | |
| 60 | | S12 | 59.1' 60.0' | 34 50/5" | | S12, N=50/5", Yellowish brown, slightly micaceous, very fine SANDY SILT, weathered rock. | ML | | |
| 65 | | S13 | 64.1' 65.6' | 7 40 48 | | Augering Terminated @ 64.1' S13, N=88, Brown, slightly micaceous, very fine SANDY SILT, weathered rock. Boring Terminated @ 65.6' | ML | | |
| 70 | | | | | | Monitoring Well Installed. See Installation Sheet for Details. Screened Interval from 27.0' to 37.0'. | | | |


Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test

| | | | |
|---------------------------|----------|--|---|
| Ground Surface Elev. (ft) | |  Duke Engineering & Services <small>A Duke Energy Company</small> | BORING MW2-2 <small>Page 3 of 3</small> |
| Date Boring Completed: | 5/2/2000 | | |
| Boring Logged By: | CAM/MFS | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|-------------------|--------------------------|------|-------|------------|
| 0 | | | | | | Rotary Drill with Water. | | | 784.7 |
| 5 | | | | | | | | | 779.7 |
| 10 | | | | | | | | | 774.7 |
| 15 | | | | | | | | | 769.7 |
| 20 | | | | | | | | | 764.7 |

Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test


| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|-------|---------------|-------|-------|---|----------------|--------------------------------|-----|-------------|
| | | Depth of (ft) | | | Client: Duke Power Company | | Casing / Augers: | | |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Ash Landfill - Permit | | Split spoon 1: | | Automatic |
| 05/16/00 | 4:00p | 74.0' | 89.9' | 30.5' | Project No.: 00003.08.0080.00.00000 | | Split spoon 2: | | |
| | | | | | Location: Belews Creek, North Carolina | | Core Barrel ID: | n/a | |
| | | | | | Drilling Contractor: DE&S | | Core Barrel Type: | NQ | |
| | | | | | Drillers: Jim Barker/Ricky Dickard | Drill Rig: CMS | Boring Logged By: CAMedlin/MFS | | |
| Date Boring Completed: | | 05/16/00 | | |  Duke Engineering & Services. <i>A Duke Energy Company</i> | | BORING MW2-2A | | |
| REFUSAL @ | | 72.8' | | | | | | | |
| Total Depth of Hole: | | 89.9' | | | | | | | |
| Page 1 of 8 | | | | | | | | | |


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|--|--------------------|---------------|----------------------|--|-------------------|---|------|-------------------------------------|------------|
| 20 | n/a | | | | n/a | | | | 764.7 |
| 25 | | | | | | | | | 759.7 |
| 30 | | | | | | Set NW Casing down to 28.5'. Run Falling Head Permeability at 28.5'. $k=1.07E-05$ cm/sec. | | | 754.7 |
| 35 | | | | | | | | | 749.7 |
| 40 | | | | | | | | | 744.7 |
| 45 | | | | | | | | | 739.7 |
| Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test | | | | | | | | | |
| Ground Surface Elev. (ft) | | 784.7 | |  | | | | BORING MW2-2A Page 2 of 8 | |
| Date Boring Completed: | | 5/16/2000 | | | | | | | |
| Boring Logged By: | | CAM/MFS | | | | | | | |


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|-------------------|--|------|-------|------------|
| 45 | n/a | | | | n/a | | | | 739.7 |
| 50 | | | | | | | | | 734.7 |
| 55 | | | | | | | | | 729.7 |
| 60 | | | | | | | | | 724.7 |
| 65 | | | | | | | | | 719.7 |
| 70 | | S14 | 68.6' | 5 | | Note: Split Spoons taken every 5' down to 64.0' in Boring # MW2-2. | | | |
| | | | | 25 | | S14, N= 56, Olive, slightly micaceous, fine ot coarse SILTY SAND. | SM | | |
| | | | 70.1' | 31 | | | | | 714.7 |

Sample Types S:split spoon UD:3" dia. thin wall tube **Lab Tests** G:grain size A:Atterberg Limit U:unconfined compressive strength test


[illegible]

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|---|----------------|-------------|------------|---------------------------------|--|--|--|
| 72.8 | 0.0 | | 711.9 | | 72.8', Carbide refusal Light brownish gray, medium to moderately hard, fine-grained, micaceous FLASER GNEISS. (Recovered material only). | Run 7.1' from 72.8' to 79.9'. Rec=2.7', RQD=0. 72.8' to 80.1', Severe to complete weathering. Recovered material moderate to moderately severe weathering. | |
| 73.8 | 1.0 | | 710.9 | | | | |
| 74.8 | 2.0 | | 709.9 | | | | |
| 75.8 | 3.0 | | 708.9 | | | | |
| 76.8 | 4.0 | | 707.9 | | | | |
| 77.8 | 5.0 | | 706.9 | NQ 38 | | 77.2', JOINT, low dip, open, SI Fe/Mn-staining. 77.4', JOINT, low dip, open, SI Fe/Mn-staining. 77.5', JOINT, low dip, open, SI Fe/Mn-Staining. 77.6', JOINT, steep dip, open, SI Fe/Mn-staining. 77.6', JOINT, low dip, open, SI Fe/Mn-staining. 77.8', JOINT, low dip, open, SI Fe/Mn-staining. | 0 |
| Client: Duke Power Company | | | | | Coring Terminated @ 89.9' | | BORING MW2-2A DEPTH INTERVAL 72.8' to 77.8'  A Duke Energy Company |
| Project: Belevs Creek Ash Landfill - Permit | | | | Date Drilled: 5/17/2000 | | | |
| Project No.: 00003.08.0080.00.00000 | | | | Logged By: MFSchaeffer/CAMedlin | | | |
| Lab Sample No: | | | | Comments: | | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? | | | | | | | |
| No | | | | | | | |

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|--|----------------|-------------|------------|-----|---|---|-------------|
| 77.8 | 5.0 | | 706.9 | | | 78.1', JOINT, low dip, open, Fe/Mn-staining. 78.3', JOINT, low dip, open, Fe/Mn-staining. 78.4', JOINT, low dip, open, Fe/Mn-staining. 78.4', JOINT, steep dip, open, SI Fe-staining. 78.5', JOINT, low dip, open, Fe/Mn-staining. 78.6', JOINT, low dip, open, Fe/Mn-staining. 78.7', JOINT, low dip, open, Fe/Mn-staining. | |
| 78.8 | 6.0 | | 705.9 | | | 79.0', JOINT, steep dip, open, no staining. 79.1', JOINT, low dip, open, Fe/Mn-staining. 79.2', JOINT, low dip, open, Fe/Mn-staining. 79.3', JOINT, low dip, open, Fe/Mn-staining. 79.3', JOINT, steep dip, open, no staining. 79.4', JOINT, low dip, open, Fe/Mn-staining. 79.6' JOINT, steep dip, open, no staining. 79.7' to 79.9', 4 JOINTs, low dip, open, stained. | |
| 79.8 | 7.0 | | 704.9 | | | Run 10' from 79.9' to 89.9', Rec=10.0', RQD=6.5'. 80.0', JOINT, low dip, open, Fe/Mn-staining. 80.1', JOINT, low dip, open, Fe/Mn-staining. 80.1' to 89.9', Slight to very slight weathering. | |
| | 7.5 | | | | 80.1' _____ Very light gray to light gray, hard to very hard, fine- to medium-grained BIOTITE GNEISS (biotite- quartz-feldspar). | | |
| 80.8 | 8.0 | | 703.9 | | | | |
| | 8.5 | | | | | | |
| 81.8 | 9.0 | | 702.9 | | | | |
| | 9.5 | | | | | | |
| 82.8 | 10.0 | | 701.9 | | | | |
| Client: Duke Power Company | | | | | Coring Terminated @ 89.9' | | |
| Project: Belevs Creek Ash Landfill - Permit | | | | | Date Drilled: 5/17/2000 | | |
| Project No.: 00003.08.0080.00.00000 | | | | | Logged By: MFSchaeffer/CAMedlin | | |
| Lab Sample No: | | | | | Comments: | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? | | | | |  A Duke Energy Company | | |
| no | | | | | | | |
| BORING MW2-2A DEPTH INTERVAL 77.8' to 82.8' | | | | | | | Page 6 of 8 |

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RCD |
|---|----------------|-------------|------------|---------------------------------|---------------------------|--|--|
| 82.8 | 10.0 | | 701.9 | | | 83.2', JOINT, Steep dip, open, no staining, quartz-calcite. 83.4', JOINT, low dip, open, no staining, calcite-quartz. | |
| | 10.5 | | | | | | |
| 83.8 | 11.0 | | 700.9 | | | 83.8', JOINT, low dip, open, no staining. | |
| | 11.5 | | | | | 84.3', JOINT, steep dip, open, no staining. | |
| 84.8 | 12.0 | | 699.9 | | | | |
| | 12.5 | | | NQ 100 | | 85.3', JOINT, low dip, open, no staining. 85.4', JOINT, low dip, open, no staining. | 65 |
| 85.8 | 13.0 | | 698.9 | | | 85.8', JOINT, low dip, open, no staining. | |
| | 13.5 | | | | | 86.1' JOINT, low dip, open, no staining. | |
| 86.8 | 14.0 | | 697.9 | | | | |
| | 14.5 | | | | | 87.5', JOINT, Steep dip, open, no staining. | |
| 87.8 | 15.0 | | 696.9 | | | 87.7' JOINT, Medium dip, open, no staining. | |
| Client: Duke Power Company | | | | | Coring Terminated @ 89.9' | | BORING MW2-2A DEPTH INTERVAL 82.8' to 87.8' |
| Project: Belews Creek Ash Landfill - Permit | | | | Date Drilled: 5/17/2000 | | | |
| Project No.: 00003.08.0080.00.00000 | | | | Logged By: MFSchaeffer/CAMedlin | |  A Duke Energy Company | |
| Lab Sample No: | | | | Comments: | | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? | | | | | | Page 7 of 8 | |
| no | | | | | | | |


| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|-------------------|----------------|-------------|------------|-----|--|--|-----|
| 87.8 | 15.0 | | 696.9 | | | | |
| | 15.5 | | | | | | |
| 88.8 | 16.0 | | 695.9 | | | 88.6' to 89.8', QUARTZ VEIN, steep dip. | |
| | 16.5 | | | | | 88.9', JOINT, low dip, open, no staining. | |
| | | | | | | 89.3', JOINT, steep dip, open, no staining. | |
| | | | | | | 89.7', 2 JOINTs, low dip, open, no staining. | |
| 89.8 | 17.0 | | 694.9 | | Coring Terminated @ 89.9' | | |
| | 17.5 | | | | Set NW Casing to 73.5'. Run Falling Head Permeability from 73.5' to 89.9'. $k=5.45E-06$ cm/sec | | |
| 90.8 | 18.0 | | 693.9 | | | | |
| | 18.5 | | | | | | |
| 91.8 | 19.0 | | 692.9 | | | | |
| | 19.5 | | | | | | |
| 92.8 | 20.0 | | 691.9 | | | | |

| | | | | |
|---|--|------------------------------------|--|---|
| Client: Duke Power Company | | Coring Terminated @ 89.9' | | BORING MW2-2A DEPTH INTERVAL 87.8' to 89.9'  <i>A Duke Energy Company</i> |
| Project: Belews Creek Ash Landfill - Permit | | Date Drilled: 5/17/2000 | | |
| Project No.: 00003.08.0080.00.00000 | | Logged By: MFSchaeffer/CAMedlin | | |
| Lab Sample No: Sample Interval: Water Return During Core? no | | Comments: | | |

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| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (In.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|----------------|-------------------|---|-----------|-------|------------|
| 0 | n/a | | | | n/a | | | | 794.2 |
| 5 | | S1 | 4.0' 5.5' | 2 3 5 | | S1, Yellowish brown, slightly micaceous, fine SANDY SILT . (G,A), LL=34.0, PI=8.0. | ML (S) | | 789.2 |
| 10 | | UD1 | 9.0' 9.9' | | | UD1, Pushed 0.9', Rec=0.7'. End of Tube bent. Bag sample collected from auger cuttings, 0' to 10'. | | | 784.2 |
| | | S2 | 11.4' | 4 13 13 | | S2, Yellowish brown, slightly micaceous, fine SANDY SILT with some weathered rock fragments. | ML | | |
| 15 | | UD2 | 14.0' 16.0' | | | UD2, Pushed 2.0', REC=2.0'. | | | 779.2 |
| | | S3 | 17.5' | 21 32 35 | | S3, Yellowish brown, slightly micaceous, fine SANDY SILT . | ML | | |
| 20 | | UD3 | 19.0' 20.0' | | | UD3, Pushed 1.0', REC=1.0'. Bag sample collected from auger cuttings, 10' to 20'. | | | 774.2 |

Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test

| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|-------|---------------|-------|-------|--|----------------|--|-------|-------------|
| | | Depth of (ft) | | | Client: Duke Power Company | | Casing / Augers: | 3.25" | n/a |
| Date | Time | Casing | Hole | Water | Project: Belews Creek Ash Landfill - Permit | | Split spoon 1: | | Automatic |
| 05/09/00 | 8:00a | none | 40.7' | DRY | Project No.: 00003.08.0080.00.00000 | | Split spoon 2: | | Automatic |
| 05/10/00 | 5:00p | none | 40.7' | DRY | Location: Belews Creek, North Carolina | | Core Barrel ID: | n/a | |
| 05/11/00 | 5:00p | 61.8' | 59.3' | 47.5' | Drilling Contractor: DE&S | | Core Barrel Type: | NQ | |
| | | | | | Drillers: Jim Barker/Ricky Dickard | Drill Rig: CMS | Boring Logged By: CAMedlin/MFS | | |
| Date Boring Completed: | | 05/10/00 | | |  Duke Engineering & Services <i>A Duke Energy Company</i> | | BORING MW2-3 Page 1 of 6 | | |
| AUGER REFUSAL @ | | 40.7' | | | | | | | |
| Total Depth of Hole: | | 59.3' | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (In.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|-----------------|------------|-------------------|-------------------|----------------|--|-----------|-------|------------|
| 20 | # | n/a | 20.0' | | n/a | | | | 774.2 |
| | | S4 | 20.5' | 50/6" | | S4, Yellowish brown, slightly micaceous, fine to medium, SILTY SAND (weathered rock). | SM | | |
| | | | | | | | | | |
| | | | 24.0' | | | | | | |
| 25 | | S5 | 25.5' | 8 12 16 | | S5, Yellowish brown, slightly micaceous, fine SILTY SAND . | SM | | 769.2 |
| | | | | | | | | | |
| | | | 29.0' | | | Large bag sample of auger cuttings from 20' to 30'. UD4, Pushed 1.6', REC=1.6'. Lab tests include G-Grain Size, Soil Classification (USCS) A-Atterburg Limits, Total Porosity, and Saturated Hydraulic Conductivity. LL=NP, PI=38; UW=93.8pcf; SG=2.72; Por=0.45; k=5.58E-05 cm/sec. | ML (G) | | 764.2 |
| 30 | | S6 | 31.5' | 13 50/5" | | S6, Yellowish brown, slightly micaceous, very fine SILTY SAND . | SM | | |
| | | | | | | | | | |
| | | | 34.0' | | | | | | |
| 35 | | S7 | 35.4' | 16 18 50/5" | | S7, Yellowish brown, slightly micaceous, fine SILTY SAND . (G,A), LL=32, PI=3. | SM (G) | | 759.2 |
| | | | | | | | | | |
| | | | 39.0' | | | | | | |
| 40 | | S8 | 39.7' | 12 50/3" | | S8, Yellowish brown, slightly micaceous, fine SANDY SILT . Bag sample collected from auger cuttings, 30' to 40'. Auger Refusal @ 40.7' _____ Set NW Casing down auger hole to 40.9'. Start coring with NQ barrel at 40.9' Rock Core from 40.9' to 59.3'. Monitoring Well Installed. See installation sheet for details. Screened Interval from 39.3' to 59.3'. Result of Slug Test: k=7.8E-05 cm/sec. | ML | | 754.2 |
| 45 | | | | | | | | | 749.2 |


| | |
|--|-----------|
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test | |
| Ground Surface Elev. (ft) | 794.2 |
| Date Boring Completed: | 5/10/2000 |
| Boring Logged By: | CAM/MFS |




Duke Engineering & Services
A Duke Energy Company

BORING MW2-3


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| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|--|----------------|-------------|------------|---------------------------------|--|--|---|
| 40.9 | 0.0 | | 753.3 | | Auger Refusal at 40.7' Set NW Casing to 40.9'. Pinkish gray to light brownish gray, moderately hard to hard, fine- to medium-grained AUGEN GNEISS (feldspar augen). | Run 8.4' from 40.9' to 49.3', Rec=7.7', RQD=4.0' 40.9' to 42.9', Moderate to slight weathering. 41.2', Fracture parallel to S, no staining. 41.4', Fracture parallel to S, no staining. 41.5', JOINT, steep dip, open, no staining. 41.6', Fracture parallel to S, no staining. 41.8', Fracture parallel to S, no staining. 41.9', Fracture parallel to S, no staining. 42.0', Fracture parallel to S, no staining. 42.7', Fracture parallel to S, no staining. | |
| 41.9 | 1.0 | | 752.3 | | | | |
| 42.9 | 2.0 | | 751.3 | | 42.9' Light brownish gray, moderately hard, medium- to coarse-grained MICA SCHIST (recovered material only). | 42.9' to 44.0', Core loss and core broken along medium to high angle joints. | |
| 43.9 | 3.0 | | 750.3 | | 44.0' Light gray to medium light gray, hard, fine- to medium-grained schistose MICA GNEISS (muscovite/biotite-quartz-feldspar). | 44.3', Fracture parallel to S, no staining. 44.4', Fracture parallel to S, no staining. 44.5', JOINT, steep dip, open, no staining. 44.7' to 44.9', 4 Fractures parallel to S. | |
| 44.9 | 4.0 | | 749.3 | NQ 92 | | 45.2', Fracture parallel to S, no staining. 45.3' to 45.5', 3 Fractures parallel to S. 45.6' to 45.7', 3 Fractures parallel to S. | 48 |
| 45.9 | 5.0 | | 748.3 | | | | |
| Client: Duke Power Company | | | | | Coring Terminated @ 59.3' | | BORING MW2-3 DEPTH INTERVAL 40.9' to 45.9'  A Duke Energy Company |
| Project: Belews Creek Ash Landfill - Permit | | | | Date Drilled: 5/10/2000 | | | |
| Project No.: 00003.08.0080.00.00000 | | | | Logged By: MFSchaeffer/CAMedlin | | | |
| Lab Sample No: | | | | Comments: | | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? no, lost water at 40.9' | | | | | | Page 3 of 6 | |


| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|---|----------------|-------------|------------|-----|---|--|-----|
| 45.9 | 5.0 | | 748.3 | | | 46.2' to 46.6', 8 Fractures parallel to S. | |
| | 5.5 | | | | | | |
| 46.9 | 6.0 | | 747.3 | | 46.6' _____ Light gray to medium light gray, hard to very hard, fine- to medium-grained schistose MICA GNEISS (muscovite/biotite-quartz-feldspar). | 47.2', Fracture parallel to S, no staining. | |
| | 6.5 | | | | | | |
| 47.9 | 7.0 | | 746.3 | | | 48.1', Fracture parallel to S, no staining. | |
| | 7.5 | | | | | 48.5', Fracture parallel to S, no staining. | |
| 48.9 | 8.0 | | 745.3 | | | 49.3', Fracture parallel to S, no staining. Run 10' from 49.3' to 59.3', Rec=10.0', RQD=8.1'. | |
| | 8.5 | | | | | | |
| 49.9 | 9.0 | | 744.3 | | | 49.9', Fracture parallel to S, no staining. | |
| | 9.5 | | | | | 50.3', Fracture parallel to S, no staining. | |
| 50.9 | 10.0 | | 743.3 | | | 50.6' to 50.9, 3 Fractures parallel to S, no staining. | |
| Client: Duke Power Company | | | | | Coring Terminated @ 59.3' | | |
| Project: Belews Creek Ash Landfill - Permit | | | | | Date Drilled: 5/10/2000 | | |
| Project No.: 00003.08.0080.00.00000 | | | | | Logged By: MFSchaeffer/CAMedlin | | |
| Lab Sample No: _____ | | | | | Comments: _____ | | |
| Sample Interval: _____ | | | | | | | |
| Water Return During Core? no, lost water at 40.9 (ft) | | | | |  A Duke Energy Company | | |
| | | | | | | | |
| | | | | | | Page 4 of 6 | |

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|-------------------|----------------|-------------|------------|--------|------------------|--|-----|
| 50.9 | 10.0 | | 743.3 | | | | |
| | 10.5 | | | | | 51.6', Fracture parallel to S, no staining. | |
| 51.9 | 11.0 | | 742.3 | | | 52.1', Fracture parallel to S, no staining. | |
| | 11.5 | | | | | | |
| 52.9 | 12.0 | | 741.3 | | | 53.0' to 53.8', Copre broken along medium and steeply dipping JOINTS, no staining. | |
| | 12.5 | | | | | | |
| 53.9 | 13.0 | | 740.3 | | | | |
| | 13.5 | | | NQ 100 | | | |
| 54.9 | 14.0 | | 739.3 | | | 54.8' to 55.1', 4 Fractures parallel to S. | 81 |
| | 14.5 | | | | | | |
| 55.9 | 15.0 | | 738.3 | | | | |

| | | | |
|--|--|------------------------------------|--|
| Client: Duke Power Company | | Coring Terminated @ 59.3' | |
| Project: Belews Creek Ash Landfill - Permit | | Date Drilled: 5/10/2000 | |
| Project No.: 00003.08.0080.00.00000 | | Logged By: MFSchaeffer/CAMedlin | |
| Lab Sample No: Sample Interval: | | Comments: | |
| Water Return During Core? no, lost water at 40.9 (ft) | | | |

| | |
|---|--|
| BORING MW2-3 | |
| DEPTH INTERVAL 50.9' to 55.9' | |
|  | |
| Page 5 of 6 | |

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|--|----------------|-------------|------------|---------------------------------|--|---|---|
| 55.9 | 15.0 | | 738.3 | | | | |
| | 15.5 | | | | | | |
| 56.9 | 16.0 | | 737.3 | | | 57.1', Fracture parallel to S, no staining. | |
| | 16.5 | | | | | | |
| 57.9 | 17.0 | | 736.3 | | | | |
| | 17.5 | | | | | | |
| 58.9 | 18.0 | | 735.3 | | | | |
| | 18.5 | | | | Coring Terminated @ 59.3' | | |
| 59.9 | 19.0 | | 734.3 | | Rock Core from 40.7' to 59.3'. Monitoring Well Installed. See installation sheet for details. Screened Interval from 39.3' to 59.3'. | | |
| | 19.5 | | | | | | |
| 60.9 | 20.0 | | 733.3 | | | | |
| Client: Duke Power Company | | | | | Coring Terminated @ 59.3' | | BORING MW2-3 DEPTH INTERVAL 55.9' to 59.3'  A Duke Energy Company |
| Project: Belews Creek Ash Landfill - Permit | | | | Date Drilled: 5/10/2000 | | | |
| Project No.: 00003.08.0080.00.00000 | | | | Logged By: MFSchaeffer/CAMedlin | | | |
| Lab Sample No: | | | | Comments: | | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? no, lost water at 40.9 (ft) | | | | | | Page 6 of 6 | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) | |
|--|--------------------|---------------|----------------------|---------------|---|--|----------------|------------------------------------|------------|-------------|
| 0 | n/a | | | | n/a | | | | 812.2 | |
| 5 | | S1 | 4.0' | 2 | | S1, Yellowish brown, slightly micaceous, fine SANDY SILT. (G,A), LL=53, PI=15. | MH | | 807.2 | |
| | | | 5.5' | 2 | | | (G) | | | |
| | | | | 3 | | | | | | |
| 10 | | UD1 | 9.0' | | | Bag sample from auger cuttings, 0' to 10'. UD1, Pushed 2.0', REC=2.0'. | | | 802.2 | |
| | | | 11.0' | | | | | | | |
| | | S2 | | 2 | | S2, Yellowish brown, slightly micaceous, fine SANDY SILT. | ML | | | |
| | | | 12.5' | 3 | | | | | | |
| | | | | 4 | | | | | | |
| | | | 14.0' | | | | | | | |
| 15 | | S3 | | 3 | | S3, Yellowish brown, slightly micaceous, fine SANDY SILT. | ML | | 797.2 | |
| | | | 15.5' | 4 | | | | | | |
| | | | | 5 | | | | | | |
| | | | 19.0' | | | | | | | |
| 20 | | UD2 | | | | Bag sample from auger cuttings, 10' to 20'. UD2, Pushed 2.0', REC=1.6'. Lab tests include G:Grain Size. Soil Classification (USCS), | ML | | 792.2 | |
| Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test | | | | | | | | | | |
| Water Level Readings | | | | | Project Information | | | Equipment | ID | Hammer/Drop |
| Depth of (ft) | | | | | Client: Duke Power Company | | | Casing / Augers: | 3.25" | |
| Date | Time | Casing | Hole | Water | Project: Belews Creek Ash Landfill - Permit | | | Split spoon 1: | | Automatic |
| 05/09/00 | 4:00p | 0.0 | 38.0' | DRY | Project No.: 00003.08.0080.00.00000 | | | Split spoon 2: | | Automatic |
| 05/10/00 | 7:30a | 0.0 | 38.0' | DRY | Location: Belews Creek, North Carolina | | | Core Barrel ID: | n/a | |
| 05/11/00 | 5:00p | 60.0' | 58.0' | 45.4' | Drilling Contractor: DE&S | | | Core Barrel Type: | NQ | |
| | | | | | Drillers: Jim Barker/Ricky Dickard | | Drill Rig: CMS | Boring Logged By: CAMedlin/MFS | | |
| Date Boring Completed: 05/10/00 | | | | |  A Duke Energy Company | | | BORING MW2-4 Page 1 of 6 | | |
| AUGER REFUSAL @ 38.0' | | | | | | | | | | |
| Total Depth of Hole: 58.0' | | | | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (In.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|-------------------|--|-----------|-------|------------|
| 20 | n/a | | | | n/a | | | | 792.2 |
| | | | 21.0' | | | A-Atterburg Limits, and Total Porosity. LL=NP, PI=NP; UW=82.1pcf, SG=2.88; Por=0.51. | (G) | | |
| | | S4 | 22.5' | 4 | | S4, Yellowish brown, slightly micaceous, fine SANDY SILT. | ML | | |
| | | | | 5 | | | | | |
| | | | 24.0' | 6 | | | | | |
| 25 | | UD3 | 25.0' | | | UD3, Pushed 2.0', REC=1.6'. UD tube bent along side by a rock. | | | 787.2 |
| | | | | 11 | | | | | |
| | | S5 | 27.5' | 18 | | S5, Yellowish brown, slightly micaceous, fine SANDY SILT with a seam of quartz near 27.5'. (G,A), LL=NP, PI=NP. | ML (G) | | |
| | | | | 19 | | | | | |
| | | | 29.0' | | | UD refused to push at 29.0'. | | | |
| 30 | | S6 | 29.3' | 50/3" | | SS, No recovery. Large bag sample from auger cuttings, 20' to 30'. | | | 782.2 |
| | | | | | | | | | |
| | | | 34.0' | | | | | | |
| 35 | | S6 | 35.2' | 16 | | S6, Yellowish brown, slightly micaceous, fine SANDY SILT with some weathered rock fragments. | ML | | 777.2 |
| | | | | 30 | | | | | |
| | | | | 50/3" | | | | | |
| | | | | | | Large bag sample from auger cuttings, 30' to 38'. | | | |
| | | | | | | Auger Refusal @ 38.0' | | | |
| | | | | | | Set NW Casing to 38.0'. Start coring with NQ barrel at 38.0' | | | |
| | | | | | | Rock core from 38.0' to 58.0'. | | | |
| | | | | | | Monitoring Well Installed. See Installation Sheet for Details. | | | |
| 40 | | | | | | Screened Interval from 38.0' to 58.0'. | | | 772.2 |
| | | | | | | Result of Slug Test: $k=7.4E-04$ cm/sec. | | | |
| 45 | | | | | | | | | 767.2 |

Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterburg Limit U:unconfined compressive strength test

Ground Surface Elev. (ft) 812.2


Date Boring Completed: 5/11/2000


Boring Logged By: CAM/MFS





BORING MW2-4

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| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|---|----------------|-------------|------------|---------------------------------|--|---|---|
| 38.0 | 0.0 | | 774.2 | | Auger Refusal @ 38.0' | Run 8.4' from 38.0' to 46.4'. Rec=7.1', RQD=1.5'. 38.0' to 42.4', Moderately severe to moderate weathering. 38.3', JOINT, steep dip, open, sl Fe/Mn-staining. | |
| | 0.5 | | | | | 38.6', JOINT, low dip, open, Fe/Mn-staining. 38.7', JOINT, low dip, open, Fe/Mn-staining. | |
| 39.0 | 1.0 | | 773.2 | | | 39.0', JOINT, low dip, open, Fe/Mn-staining. 39.1', JOINT, low dip, open, Fe/Mn-staining. 39.2' to 40.0', Core broken. | |
| | 1.5 | | | | 39.4'----- Medium dark gray, moderately hard, medium-grained HORNBLLENDE GNEISS. 39.7'----- | | |
| 40.0 | 2.0 | | 772.2 | | Light brownish gray to medium light gray, moderately hard, coarse-grained MICA SCHIST (with quartz-rich layers). | 40.2' to 40.5', Core broken. | |
| | 2.5 | | | | 40.5'----- Medium dark gray, moderately hard, medium-grained HORNBLLENDE GNEISS. | 40.5', JOINT, low dip, open, Fe/Mn-staining. 40.7', JOINT, steep dip, open, sl Fe/Mn-staining. 40.8', JOINT, low dip, open, Fe/Mn-staining. | |
| 41.0 | 3.0 | | 771.2 | | | 41.1', JOINT, low dip, open, Fe/Mn-staining. | |
| | 3.5 | | | | 41.7'----- Light brownish gray to medium light gray, moderately hard, coarse-grained MICA SCHIST (with quartz-rich layers). | 41.8', JOINT, low dip, open, Fe/Mn-staining. 41.9' to 43.0', Core broken along medium to steeply dipping JOINTS, Fe/Mn-staining. | |
| 42.0 | 4.0 | | 770.2 | | | 42.4' to 44.7', Moderate weathering. | |
| | 4.5 | | | NQ 85 | 42.4'----- Light gray to very light gray, moderately hard, fine-grained QUARTZ-FELDSPAR GNEISS, schistose. [1] | | |
| 43.0 | 5.0 | | 769.2 | | | | 18 |
| Client: Duke Power Company | | | | | Coring Terminated @ 58.0' | | BORING MW2-4 DEPTH INTERVAL 38.0' to 43.0'  A Duke Energy Company |
| Project: Belevs Creek Ash Landfill - Permit | | | | Date Drilled: 5/9/2000 | | | |
| Project No.: 00003.08.0080.00.00000 | | | | Logged By: MFSchaeffer/CAMedlin | | | |
| Lab Sample No: Sample Interval: | | | | Comments: | | | |
| Water Return During Core? no, lost water at 38.0 (ft) | | | | | | | |
| | | | | | | | Page 3 of 6 |


| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|--|----------------|-------------|------------|-----|--|--|-----|
| 43.0 | 5.0 | | 769.2 | | | 43.0', JOINT, low dip, open, Fe/mn-staining. | |
| | 5.5 | | | | | 43.5', JOINT, low dip, open, Fe/Mn-staining. | |
| 44.0 | 6.0 | | 768.2 | | | 43.8', JOINT, medium dip, open, sl-staining. 43.9', JOINT, low dip, open, Fe/Mn-staining. 44.0', JOINT, low dip, open, Fe/Mn-staining. 44.1', JOINT, low dip, open, Fe/Mn-staining. 44.2', JOINT, low dip, open, Fe/Mn-staining. | |
| | 6.5 | | | | | 44.7' to 47.6', Moderately severe to moderate weathering. 44.7' to 46.4', Core broken/loss. | |
| 45.0 | 7.0 | | 767.2 | | | | |
| | 7.5 | | | | | | |
| 46.0 | 8.0 | | 766.2 | | | | |
| | 8.5 | | | | 46.4' _____ Medium dark gray, moderately hard, medium-grained HORNBLLENDE GNEISS . | 46.4' to 46.5', Core broken. Run 7.5' from 46.4' to 53.9', Rec=6.6', RQD=0.7'. | |
| 47.0 | 9.0 | | 765.2 | | 46.8' _____ [1] 47.1' _____ Medium dark gray, moderately hard, medium-grained HORNBLLENDE GNEISS . | 47.2', JOINT, steep dip, open, sl-staining. 47.3' to 47.5', Core broken. | |
| | 9.5 | | | | | | |
| 48.0 | 10.0 | | 764.2 | | 47.6' _____ Light gray to very light gray, moderately hard to hard, fine- to medium-grained schistose MICA GNEISS (muscovite/biotite-quartz-feldspar). | 47.6' to 50.3', Moderate to slight weathering. 47.8', JOINT, steep dip, open, sl-staining. | |
| Client: Duke Power Company | | | | | Coring Terminated @ 58.0' | | |
| Project: Belews Creek Ash Landfill - Permit | | | | | Date Drilled: 5/9/2000 | | |
| Project No.: 00003.08.0080.00.00000 | | | | | Logged By: MFSchaeffer/CAMedlin | | |
| Lab Sample No: | | | | | Comments: | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? no, lost water at 38.0 (ft) | | | | | | | |
| BORING MW2-4 DEPTH INTERVAL 43.0' to 48.0' | | | | | | | |
|  A Duke Energy Company | | | | | | | |
| Page 4 of 6 | | | | | | | |

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|--|----------------|-------------|------------|---------------------------------|---|---|---|
| 48.0 | 10.0 | | 764.2 | | | 48.0', JOINT, low dip, open, Fe/Mn-staining. 48.2', JOINT, low dip, open, Fe/Mn-staining. 48.2', JOINT, steep dip, open, sl-staining. 48.3', JOINT, low dip, open, Fe/Mn-staining. 48.4' to 48.5', 3 JOINTs, low dip, staining. | |
| | 10.5 | | | | | 48.7', JOINT, low dip, open, Fe/Mn-staining. 48.7', JOINT, steep dip, open, sl-staining. 48.9', JOINT, low dip, open, Fe/Mn-staining. | |
| 49.0 | 11.0 | | 763.2 | | | 49.1', JOINT, low dip, open, Fe/Mn-staining. 49.2', JOINT, low dip, open, Fe/Mn-staining. 49.3', JOINT, low dip, open, Fe/Mn-staining. 49.3', JOINT, steep dip, open, sl-staining. 49.5', JOINT, medium dip, open, sl-staining. 49.6', JOINT, low dip, open, Fe/Mn-staining. | |
| | 11.5 | | | | | 49.8' to 50.0', 4 JOINTs, low dip, staining. | |
| 50.0 | 12.0 | | 762.2 | | | | |
| | 12.5 | | | | 50.3' _____ Medium light gray, soft to medium hard, medium- to coarse-grained MICA SCHIST. | 50.3' to 51.2', Complete to very severe weathering. | |
| | | | | | | | |
| 51.0 | 13.0 | | 761.2 | | | 51.2' _____ Light gray to very light gray, hard, fine- to medium-grained, schistose MICA GNEISS. [2] | |
| | 13.5 | | | | | 51.2' to 58.0', Moderate to slight weathering. 51.2', JOINT, low dip, open, Fe/Mn-staining. 51.3', JOINT, low dip, open, Fe/Mn-staining. 51.4', JOINT, steep dip, open, sl-staining. 51.5', JOINT, low dip, open, Fe/Mn-staining. 51.6', JOINT, low dip, open, Fe/Mn-staining. 51.7', JOINT, low dip, open, Fe/Mn-staining. | |
| | | | | | | 51.9' to 52.1', 4 JOINTs, low dip, open, staining. | |
| 52.0 | 14.0 | | 760.2 | | | | |
| | 14.5 | | | | | 52.6', 2 JOINTs, low dip, open, Fe/Mn-staining. | |
| | | | | | | 52.8', JOINT, low dip, open, Fe/Mn-staining. 52.9', JOINT, low dip, open, Fe/Mn-staining. | |
| 53.0 | 15.0 | | 759.2 | | | | |
| Client: Duke Power Company | | | | | Coring Terminated @ 58.0' | | BORING MW2-4 DEPTH INTERVAL 48.0' to 53.0'  A Duke Energy Company |
| Project: Belews Creek Ash Landfill - Permit | | | | Date Drilled: 5/9/2000 | | | |
| Project No.: 00003.08.0080.00.00000 | | | | Logged By: MFSchaeffer/CAMedlin | | | |
| Lab Sample No: | | | | Comments: | | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? no, lost water at 38.0 (ft) | | | | | | | |

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|--|----------------|-------------|------------|---------------------------------|--|--|---|
| 53.0 | 15.0 | | 759.2 | | | 53.3', JOINT, low dip, open, Fe/Mn-staining. | |
| | 15.5 | | | | | | |
| 54.0 | 16.0 | | 758.2 | | | 53.7', JOINT, low dip, open, Fe/Mn-staining. 53.8' to 53.9', 3 JOINTs, low dip, open. Run 4.1' from 53.9' to 58.0', Run=4.1', RQD=0.7'. | |
| | 16.5 | | | | | 54.3', JOINT, low dip, open, Fe/Mn-staining. | |
| | | | | | 54.6' _____ Medium dark gray, moderately hard, medium-grained HORNBLende GNEISS . | 54.5', JOINT, low dip, open, Fe/Mn-staining. | |
| 55.0 | 17.0 | | 757.2 | | 55.0' _____ [2] 55.2' _____ Medium dark gray, moderately hard, medium-grained HORNBLende GNEISS . | 55.4', 2 JOINTs, low dip, open, staining. 55.5', JOINT, low dip, open, Fe/Mn-staining. | |
| | 17.5 | | | | | 55.7' to 55.8', 3 JOINTs, low dip, open. | 17 |
| | | | | NQ 100 | 55.8' _____ Very light gray to light gray, hard to very hard, fine- to medium-grained, schistose MICA GNEISS . | 56.1', JOINT, low dip, open, Fe/Mn-staining. | |
| 56.0 | 18.0 | | 756.2 | | | 56.3', JOINT, low dip, open, Fe/Mn-staining. 56.4', JOINT, low dip, open, Fe/Mn staining. | |
| | 18.5 | | | | | 56.6', 3 JOINTs, low dip, open, staining. | |
| | | | | | | 56.8' to 57.9', JOINT, steep dip, open, sl Fe/Mn-staining, calcite-quartz. | |
| 57.0 | 19.0 | | 755.2 | | | | |
| | 19.5 | | | | | | |
| 58.0 | 20.0 | | 754.2 | | Coring Terminated @ 58.0' _____ | | |
| Client: Duke Power Company | | | | | Coring Terminated @ 58.0' | | BORING MW2-4 DEPTH INTERVAL 53.0' to 58.0'  A Duke Energy Company |
| Project: Belews Creek Ash Landfill - Permit | | | | Date Drilled: 5/9/2000 | | | |
| Project No.: 00003.08.0080.00.00000 | | | | Logged By: MFSchaeffer/CAMedlin | | | |
| Lab Sample No: | | | | Comments: | | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? no, lost water at 38.0 (ft) | | | | | | | Page 6 of 6 |


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (in.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|-------------------|---|------|-------|------------|
| 0 | n/a | | | | n/a | | | | 846.8 |
| 5 | | S1 | 4.0' 5.5' | 3 5 7 | | S1, Yellowish red, slightly micaceous, fine SILTY CLAY . | CL | | 841.8 |
| 10 | | S2 | 9.0' 10.5' | 3 3 5 | | S2, Yellowish to light red, slightly micaceous, very fine SANDY SILT . | ML | | 836.8 |
| 15 | | S3 | 14.0' 15.5' | 2 4 6 | | S3, Yellowish to light red, slightly micaceous, very fine SANDY SILT with some rock fragments. | ML | | 831.8 |
| 20 | | S4 | 19.0' | 7 | | Large bag sample from auger cuttings, 10' to 20'. S4, Yellowish brown, slightly micaceous, very fine SANDY SILT . | ML | | 826.8 |

Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test


| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|------|---------------|------|-------|---|----------------|--|-------|-------------|
| | | Depth of (ft) | | | Client: Duke Power Company | | Casing / Augers: | 3.25" | |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Ash Landfill - Permit | | Split spoon 1: | | Automatic |
| | | | | | Project No.: 00003.08.0080.00.00000 | | Split spoon 2: | | Automatic |
| | | | | | Location: Belews Creek, North Carolina | | Core Barrel ID: | n/a | |
| | | | | | Drilling Contractor: DE&S | | Core Barrel Type: | NQ | |
| | | | | | Drillers: Jim Barker/Ricky Dickard | Drill Rig: CMS | Boring Logged By: CAMedlin/MFS | | |
| Date Boring Completed: | | 05/11/00 | | |  Duke Engineering & Services. <i>A Duke Energy Company</i> | | BORING MW2-5 Page 1 of 6 | | |
| REFUSAL @ | | 38.5' | | | | | | | |
| Total Depth of Hole: | | 58.3' | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (In.) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|-----------------|------------|-------------------|------------|----------------|---|------|-------|------------|
| 20 | n/a | | | | n/a | | | | 826.8 |
| | | | 20.5' | 13 | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | 24.0' | | | | | | |
| | | | | | | | | | |
| 25 | | S5 | | 9 | | S5, Yellowish brown, slightly micaceous, very fine SANDY SILT. | ML | | 821.8 |
| | | | 25.5' | 15 | | | | | |
| | | | | 18 | | | | | |
| | | | | | | | | | |
| | | | 29.0' | | | | | | |
| | | S6 | | 25 | | S6, Yellowish brown, slightly micaceous, very fine SANDY SILT with some rock fragments. | ML | | |
| 30 | | | 30.0' | 50/6" | | | | | 816.8 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | 34.0' | | | | | | |
| | | S7 | 34.5' | 50/6" | | S7, Yellowish brown, slightly micaceous, very fine SILTY SAND. | SM | | |
| 35 | | | | | | | | | 811.8 |
| | | | | | | | | | |
| | | | 38.5' | | | SS. No penetration. | | | |
| | | SS | 38.5' | 50/0" | | Auger refusal @ 38.5' | | | |
| | | | | | | Set NW Casing to 38.8'. Start coring with NQ barrel at 38.8' | | | |
| | | | | | | Rock Core from 38.8 to 58.3'. | | | |
| | | | | | | Install Monitoring Well. See Installation Sheet for Details. | | | |
| | | | | | | Screened Interval from 34.0' to 54.0'. | | | |
| | | | | | | Result of Slug Test: $k=9.9E-04$ cm/sec. | | | |
| 40 | | | | | | | | | 806.8 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 45 | | | | | | | | | 801.8 |


| | | | |
|--|-----------|--|--|
| Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test | | | |
| Ground Surface Elev. (ft) | 846.8 | | |
| Date Boring Completed: | 5/11/2000 | | |
| Boring Logged By: | CAM/MFS | | |


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BORING MW2-5
Page 2 of 6

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|---|----------------|-------------|------------|---------------------------------|--|--|---|
| 38.8 | 0.0 | | 788.0 | | Auger Refusal @ 38.5'. NW Casing Set to 38.8'. Pinkish gray to very pale orange to very light gray, hard, fine-grained FLASER GNEISS (quartz-feldspar-mica). | Run 9.7' from 38.8' to 48.5', Rec=9.2', RQD=1.8'. 38.8' to 46.6', Moderate weathering. 39.1', JOINT, medium dip, open, Fe/Mn-staining. 39.1' to 39.6', JOINT, steep dip, open, stained. 39.3', JOINT, medium dip, open, Fe/Mn-staining. 39.5', JOINT, low dip, open, Fe/Mn-staining. 39.6', JOINT, low dip, open, Fe/Mn-staining. 39.7', JOINT, medium dip, open, Fe/Mn-staining. 39.8', JOINT, medium dip, open, Fe/Mn-staining. 40.3', JOINT, low dip, open, Mn-staining. 40.8', JOINT, low dip, open, Mn-staining. 40.8' to 41.5', JOINT, steep dip, partially open, Fe/mn-staining. 41.2', JOINT, low dip, open, Fe/Mn-staining. 41.5', JONT, low dip, open, sl Fe-staining. 41.5' to 43.4', Core broken along steeply dipping JOINTs, heavy Fe/Mn-staining. 43.0', 2 JOINTs, steep dip, open, heavy Fe/Mn-staining. 43.2', JOINT, low dip, open, Fe/Mn-staining. 43.6', JOINT, low dip, open, Fe/Mn-staining. 43.7' JOINT, low dip, open, Fe/Mn-staining. | |
| 39.8 | 1.0 | | 787.0 | | | | |
| 40.8 | 2.0 | | 786.0 | | | | |
| 41.8 | 3.0 | | 785.0 | | | | |
| 42.8 | 4.0 | | 784.0 | | | | |
| 43.8 | 5.0 | | 783.0 | | | | |
| Client: Duke Power Company | | | | | Coring Terminated @ 58.3' | | BORING MW2-5 DEPTH INTERVAL 38.8' to 43.8'  A Duke Energy Company |
| Project: Belews Creek Ash Landfill - Permit | | | | Date Drilled: 5/11/2000 | | | |
| Project No.: 00003.08.0080.00.00000 | | | | Logged By: MFSchaeffer/CAMedlin | | | |
| Lab Sample No: | | | | Comments: | | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? no | | | | | | | |

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|-------------------|----------------|-------------|------------|----------|---|--|-----|
| 43.8 | 5.0 | | 783.0 | NQ 95 | | | 19 |
| | 5.5 | | | | | 44.1', JOINT, low dip, open, Fe/Mn-staining. 44.1' to 44.5', JOINT, steep dip, open, Fe/Mn-staining. | |
| 44.8 | 6.0 | | 782.0 | | | 44.6' to 45.0', JOINT, steep dip, open, Fe/Mn-staining. | |
| | 6.5 | | | | | 45.0' to 46.6', Core broken along several low angle and medium dipping JOINTs, Fe/Mn-staining. | |
| 45.8 | 7.0 | | 781.0 | | | | |
| | 7.5 | | | | | | |
| 46.8 | 8.0 | | 780.0 | | 46.6' _____ Very light gray to light gray, hard to very hard, fine-grained FLASER GNEISS (quartz-feldspar-mica). | 46.6' to 58.3', Slight weathering. 46.6' to 47.2', JOINT, steep dip, tight, calcite. 46.9', JOINT, low dip, tight, calcite. | |
| | 8.5 | | | | | | |
| 47.8 | 9.0 | | 779.0 | | | 47.4', JOINT, low dip, open, Fe/Mn-staining. 47.5', JOINT, medium dip, open, Fe/Mn-stain. 47.6', JOINT, low dip, open, Fe/Mn-staining. 47.7', JOINT, low dip, open, sl Fe/Mn-staining. 47.8', JOINT, low dip, open, sl Fe/Mn-staining. | |
| | 9.5 | | | | | 48.1', JOINT, low dip, open, Fe/Mn-staining. 48.2', JOINT, low dip, open, Fe/Mn-staining. | |
| | | | | | | 48.4', JOINT, steep dip, open, Fe/Mn-staining. 48.4' to 49.3', JOINT, steep dip, open, Fe/Mn-staining. | |
| 48.8 | 10.0 | | 778.0 | | | Run 9.8' from 48.5' to 58.3', Rec=9.8', RQD=8.6'. | |

| | | | | |
|--|--|------------------------------------|--|---|
| Client: Duke Power Company | | Coring Terminated @ 58.3' | | BORING MW2-5 DEPTH INTERVAL 43.8 to 48.8'  <i>A Duke Energy Company</i> |
| Project: Belews Creek Ash Landfill - Permit | | Date Drilled: 5/11/2000 | | |
| Project No.: 00003.08.0080.00.00000 | | Logged By: MFSchaeffer/CAMedlin | | |
| Lab Sample No: Sample Interval: | | Comments: | | |
| Water Return During Core? no | | | | |

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|---|----------------|-------------|---------------------------------|---------------------------|------------------|--|-----|
| 48.8 | 10.0 | | 778.0 | | | | |
| | 10.5 | | | | | 49.3', JOINT, steep dip, tight, calcite. | |
| 49.8 | 11.0 | | 777.0 | | | 49.7', JOINT, steep dip, open, sl Fe-staining. | |
| | 11.5 | | | | | 50.0', JOINT, low dip, open, sl Fe-staining. | |
| 50.8 | 12.0 | | 776.0 | | | 50.8', JOINT, steep dip, open, calcite, no stain. | |
| | 12.5 | | | | | 51.3', JOINT, steep dip, tight, calcite, vuggy. 51.3', JOINT, low dip, open, no staining. | |
| 51.8 | 13.0 | | 775.0 | | | 51.6', 2 JOINTs, steep dip, partially open, calcite, vuggy, no staining. | |
| | 13.5 | | | | | 52.4', JOINT, low dip, open, no staining. | |
| 52.8 | 14.0 | | 774.0 | | | 52.6', JOINT, steep dip, open, sl Fe-staining. | |
| | 14.5 | | | | | 52.9', JOINT, steep dip, open, sl Fe-staining. | |
| 53.8 | 15.0 | | 773.0 | NQ 100 | | 53.6', JOINT, low dip, open, vsi Fe-staining. | 88 |
| Client: Duke Power Company | | | | Coring Terminated @ 58.3' | | BORING MW2-5 DEPTH INTERVAL 48.8' to 53.8'  A Duke Energy Company Page 5 of 6 | |
| Project: Belews Creek Ash Landfill - Permit | | | Date Drilled: 5/11/2000 | | | | |
| Project No.: 00003.08.0080.00.00000 | | | Logged By: MFSchaeffer/CAMedlin | | | | |
| Lab Sample No: | | | Comments: | | | | |
| Sample Interval: | | | | | | | |
| Water Return During Core? no | | | | | | | |

| Boring Depth (ft) | Rock Core (ft) | Core Sketch | Elev. (ft) | REC | ROCK DESCRIPTION | REMARKS | RQD |
|--|----------------|-------------|------------|-----|---|---|-----|
| 53.8 | 15.0 | | 773.0 | | | | |
| | 15.5 | | | | | | |
| 54.8 | 16.0 | | 772.0 | | | 54.7', JOINT, medium dip, open, no staining. | |
| | 16.5 | | | | | | |
| 55.8 | 17.0 | | 771.0 | | | | |
| | 17.5 | | | | | | |
| 56.8 | 18.0 | | 770.0 | | | 56.4', JOINT, low dip, open, calcite, sl Fe-staining. | |
| | 18.5 | | | | | 56.8', JOINT, low dip, open, vsl Fe-staining. | |
| | 19.0 | | | | | 57.3', JOINT, low dip, open, vsl Fe-staining. | |
| 57.8 | 19.0 | | 769.0 | | | 57.7', JOINT, low dip, open, vsl Fe-staining. | |
| | 19.5 | | | | | 57.9', JOINT, medium dip, open, vsl Fe-staining. | |
| | | | | | | 57.9', JOINT, low dip, open, vsl Fe-staining. | |
| | | | | | Coring Terminated @ 58.3' | | |
| 58.8 | 20.0 | | 768.0 | | | | |
| Client: Duke Power Company Project: Belews Creek Ash Landfill - Permit Project No.: 00003.08.0080.00.00000 Lab Sample No: Sample Interval: Water Return During Core? no | | | | | Coring Terminated @ 58.3' Date Drilled: 5/11/2000 Logged By: MFSchaeffer/CAMedlin Comments: | | |
| | | | | | BORING MW2-5 DEPTH INTERVAL 53.8' to 58.3'  A Duke Energy Company | | |
| | | | | | Page 6 of 6 | | |

BORING LOG MW-2-7

| | | | |
|----------------------|---------------------------|--------------------------------|----------|
| PROJECT: | Duke Power - Belews Creek | WATER LEVEL TOB (FT.): | 17.9 |
| PROJECT NO: | 1264-02-576 | WATER LEVEL 24 HRS (FT.): | 18.54 |
| PROJECT LOCATION: | Belews Creek, NC | TOP OF CASING ELEVATION (FT.): | 778.28 |
| DRILLING CONTRACTOR: | S&ME, Inc. | BORING DEPTH (FT.): | 29 |
| DRILLING METHOD: | 3/4" H.S.A. | LOGGED BY: | S. Watts |
| DATE DRILLED: | 11/14/2002 | | |

| STRATA | | WELL DETAILS | DEPTH (feet) | LEGEND | SPT (N-value) | ELEVATION (feet) | RECOVERY (inches) | FID (feet) | WELL CONSTRUCTION DETAILS |
|---|--------|-----------------|-----------------|--------|------------------|---------------------|----------------------|------------|--|
| DESCRIPTION | SYMBOL | | | | | | | | |
| Ground Surface | | | | | | 778.28 | | | PROTECTIVE CASING Diameter: 4.0 in. Type: Stick-Up Interval: 2.28 ft. |
| Light brown sandy SILT w/weathered rock fragments, dry, soil disturbed by bulldozer, (MH,ML,SM). | | | | | 50/5 | 773.28 | 4 | | OUTER CASING Diameter: N/A Type: N/A Length: N/A |
| Dark yellowish orange to grayish orange silty gravelly SAND (SP, SM). | | | 8.9 | CG | 50/4 | 768.28 | 4 | | RISER CASING Diameter: 2.0 in. Type: Schedule 40 PVC Interval: 0.0 - 14.0 ft. |
| Flaser GNEISS interlayered w/quartz-feldspathic gneiss, highly weathered, highly fractured. REC = 88.3% RQD = 0% | | | 12.7 | BS | 50/0 | 763.28 | 0 | | GROUT Type: Portland Cement Interval: 0.0 - 8.9 ft. |
| Flaser GNEISS interlayered w/quartz-feldspathic gneiss, highly weathered, highly fractured. REC = 83.3% RQD = 11.7% | | | 14 | FP | | 758.28 | 53 | | SEAL Type: Bentonite Pellets Interval: 8.9 - 12.7 ft. |
| Laminated quartz-feldspar GNEISS, low angle fractures along bedding. REC = 100% RQD = 67.5% | | | 20.0 | | | 753.28 | 50 | | FILTERPACK Type: Filter Sand #2 Interval: 12.7 - 29.0 ft. |
| Boring terminated at 29.0 ft. | | | 25.0 | | | | 60 | | SCREEN Diameter: 2.0 in. Type: Schedule 40 PVC Interval: 14.0 - 29.0 ft. |
| | | | 29 | BSC | | | | | |

NOTES:



3118 Spring Forest Road
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BORING LOG MW-2-7

- LEGEND**
- ▽ - Water Level At Termination of Boring (TOB)
 - ▽ - Water Level After 24 Hours
 - BS - Bentonite Seal
 - FP - Filter Pack
 - CG - Cement Grout
 - BSC - Bottom of Screen
 - REC - Core Recovery
 - RQD - Rock Quality Designation

BORING LOG MW-2-7A

SHEET 1 OF 1

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: S. Watts
 DATE DRILLED: 1/16/03
 BORING DEPTH (ft): 27.5

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3/4" H.S.A.
 DRILL RIG: B-53
 TOP OF CASING ELEVATION (ft): 791.38
 WATER LEVEL TOB (ft bgs): 25.5
 WATER LEVEL 24 HRS (ft bTOC): 23.45

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|--|--|---------------------------|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| - | SS-1 | 3.5-5.0 | -- | 2 | | | Dark yellow orange sandy SILT w/partially weathered rock (ML, SM), loose, crumbly, dry. Auger refusal at 9.0 ft. | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.83 ft. | | -786 |
| 5 | SS-2 | 8.5-9.0 | -- | 0 | | | | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 22.5 ft. | | -781 |
| 10 | R-1 | 9.0-10.5 | -- | 12 | 0 | | Light gray to grayish orange highly weathered flaser GNEISS. REC = 6% RQD = 0% | Grout Type: Portland Cement Interval: 0.0 - 13.5 ft. | | |
| | R-2 | 10.5-15.5 | -- | 50 | 0 | | Light gray to grayish orange highly weathered flaser GNEISS. REC = 83% RQD = 0% | Seal Type: Bentonite Chips Interval: 13.5 - 19.0 ft. | | -776 |
| 15 | R-3 | 15.5-24 | -- | 24 | 0 | | Light gray to grayish orange highly weathered flaser GNEISS w/silty sand from 16.2-17.0 ft. REC = 80% RQD = 0% | Filterpack Type: Filter Sand #2 Interval: 19.0 - 27.5 ft. | | -771 |
| 20 | | | | | | | | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 22.5 - 27.5 ft. | | -766 |
| 25 | R-4 | 24.0-27.5 | -- | 44 | 0 | | Light gray, maroon, black highly weathered and fractured fine to medium hornblende and flaser GNEISS. REC = 90% RQD = 0% | | | |
| | | | | | | | Boring terminated at 27.5 ft. | | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

1. ▽ = Water Level At Termination of Boring
 2. ▼ = Water Level After 24 Hours



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 Raleigh, NC 27616

BORING LOG MW-2-8

SHEET 1 OF 1

PROJECT: Duke Power-Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: S. Watts
 DATE DRILLED: 12/18/2002
 BORING DEPTH (ft): 24

DRILLING CONTRACTOR: Graham & Currie
 DRILLING METHOD: 4 1/4" H.S.A.
 DRILL RIG: Mobile B-57
 TOP OF CASING ELEVATION (ft): 821.40
 WATER LEVEL TOB (ft bgs):
 WATER LEVEL 24 HRS (ft bTOC): 15.34

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------|-------------------|--------------|--------|--|--|---------------------------|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blows per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| 5 | | | 4-6-16 | 13 | | | Light brown to orange fine silty SAND, dry, medium stiff (SM). | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 2.3 ft. | | - 816 |
| 10 | | | 4-29-50/4 | 8 | | | Grayish orange to dark yellow orange SAND, some relict structures w/clay minerals, slightly moist, stiff (SM). | Riser Casing Dia: 2.0 in. Type: Sch 40 PVC Interval: 0.0 - 14.0 ft. | | - 811 |
| 15 | | | 25-16-31 | | | | Pale yellow to moderate yellow brown silty gravelly SAND w/weathered rock fragments and albite crystals, slightly moist (SM, SP). Olive brown to moderate yellow brown silty SAND, moist, loose (SM). | Grout Type: Portland Cement Interval: 0.0 - 10.0 ft. | | - 806 |
| 20 | | | 21-50/6-50/2 | | | | Grayish green to dusky blue, dark green gray weathered GRANITE. | Seal Type: Bentonite Chips Interval: 10.0 - 12.3 ft. | | - 801 |
| | | | | | | | Orange to olive SAPROLITE with Iron and Manganese staining, slightly moist, loose and crumbly (SP, SM). | Filterpack Type: Filter Sand #2 Interval: 12.3 - 24.0 ft. | | |
| | | | | | | | Auger Refusal - Boring Terminated at 24.0 ft. | Screen Dia: 2.0 in. Type: Sch 40 PVC Interval: 14.0 - 24.0 ft. | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

- Advanced 4 1/4-inch Hollow Stem Augers to refusal below existing grade.
- Advanced NQ II core barrel to below existing grade.
- ▽ = Water Level At Termination of Boring
- ▼ = Water Level After 24 Hours



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BORING LOG MW-2-9

SHEET 1 OF 1

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/21/03
 BORING DEPTH (ft): 14.5

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3 1/4" H.S.A.
 DRILL RIG: B-53
 TOP OF CASING ELEVATION (ft): 798.04
 WATER LEVEL TOB (ft bgs): 9.1
 WATER LEVEL 24 HRS (ft bTOC):

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|---|---|---------------------------|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| - | SS-1 | 3.5-4.5 | 18-50- | 2 | | | Tan gravelly silty SAND w/ weathered gneiss fragments, wet-saturated. Auger refusal at 4.5 ft. | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.78 ft. | | -793 |
| 5 | R-1 | 4.5-14.5 | - | 87 | 0 | | Black, white, medium gray moderately fractured quartz rich flaser GNEISS. REC = 73% RQD = 69% | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 2.0 ft. | | -788 |
| 10 | | | | | | | | Grout Type: Portland Cement Interval: 0.0 - 1.0 ft. | | |
| | | | | | | | | Seal Type: Bentonite Chips Interval: 1.0 - 2.0 ft. | | |
| | | | | | | | Boring terminated at 14.5 ft. | Filterpack Type: Filter Sand #2 Interval: 2.0 - 12.0 ft. | | |
| | | | | | | | | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 2.0 - 12.0 ft. | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

1. ▽ = Water Level At Termination of Boring
 2. ▼ = Water Level After 24 Hours



S&ME
 ENVIRONMENTAL SERVICES
 ENGINEERING • TESTING
 3118 Spring Forest Road
 Raleigh, NC 27616

BORING LOG MW-2-10

SHEET 1 OF 2

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: S. Warwick
 DATE DRILLED: 1/21/02
 BORING DEPTH (ft): 46

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3/4" H.S.A.
 DRILL RIG: CME-55
 TOP OF CASING ELEVATION (ft): 817.53
 WATER LEVEL TOB (ft bgs): 41.5
 WATER LEVEL 24 HRS (ft bTOC): 36.95

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|-------------------------------|--|---------------------------|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| - | | | | | | | Orange brown fine sandy SILT. | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.85 ft. | | - 813 |
| 5 | SS-1 | 3.5-5.0 | 5-5-9 | 18 | | | | | | |
| | | | | | | | Orange tan fine sandy SILT. | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 31.0 ft. | | - 808 |
| 10 | SS-2 | 8.5-10.0 | 5-7-8 | 18 | | | | Grout Type: Portland Cement Interval: 0.0 - 25.0 ft. | | |
| | | | | | | | | Seal Type: Bentonite Chips Interval: 25.0 - 28.0 ft. | | - 803 |
| 15 | SS-3 | 13.5-15.0 | 6-7-9 | 18 | | | | Filterpack Type: Filter Sand #2 Interval: 28.0 - 46.0 ft. | | - 798 |
| 20 | SS-4 | 18.5-20.0 | 7-11-12 | 18 | | | | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 31.0 - 46.0 ft. | | - 793 |
| 25 | SS-5 | 23.5-25.0 | 9-12-15 | 18 | | | Tan fine sandy SILT. | | | - 788 |
| | | | | | | | | | | |
| 30 | SS-6 | 28.5-30.0 | 19-17-20 | 18 | | | | | | |
| | | | | | | | | | | |
| | SS-7 | 33.5-35.0 | 4-7-21 | 18 | | | | | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

1. ▽ = Water Level At Termination of Boring
 2. ▼ = Water Level After 24 Hours



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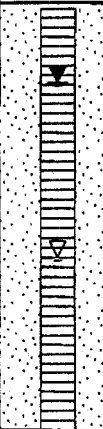
3118 Spring Forest Road
 Raleigh, NC 27616

BORING LOG MW-2-10

SHEET 2 OF 2

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: S. Warwick
 DATE DRILLED: 1/21/02
 BORING DEPTH (ft): 46

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3/4" H.S.A.
 DRILL RIG: CME-55
 TOP OF CASING ELEVATION (ft): 817.53
 WATER LEVEL TOB (ft bgs): 41.5
 WATER LEVEL 24 HRS (ft bTOC): 36.95

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|---|--|---|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (Inches) | Rock RQD (%) | | | | | |
| 40 | SS-8 | 38.5-40.0 | 7-14-50/4 | 18 | | | Tan fine sandy SILT. (continued) | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.85 ft. |  | 778 |
| | | | | | | | Tan brown PARTIALLY WEATHERED ROCK samples as fine sandy SILT w/intermittent soil layers. | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 31.0 ft. | | 773 |
| 45 | SS-9 | 43.5-44.5 | 36-50/3- | 12 | | | | Grout Type: Portland Cement Interval: 0.0 - 25.0 ft. | | |
| | SS-10 | 45.5-46.0 | 50/0-- | 6 | | | Auger refusal - boring terminated at 46.0 ft. | Seal Type: Bentonite Chips Interval: 25.0 - 28.0 ft. | | |
| | | | | | | | | Filterpack Type: Filter Sand #2 Interval: 28.0 - 46.0 ft. | | |
| | | | | | | | | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 31.0 - 46.0 ft. | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

1.  = Water Level At Termination of Boring
 2.  = Water Level After 24 Hours



S&ME
 ENVIRONMENTAL SERVICES
 ENGINEERING • TESTING

3118 Spring Forest Road
 Raleigh, NC 27616

**BELEWS CREEK PINEHALL ASH LANDFILL
GEOTECHNICAL BORING – LOGS
OB- SERIES**

WELL COMPLETION RECORD

COMPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE
DEPARTMENT OF HUMAN RESOURCES, SOLID AND HAZARDOUS WASTE MANAGEMENT BRANCH
P.O. BOX 2091, RALEIGH, N.C. 27602

NAME OF SITE:

BELEWS CREEK STEAM STATION

PERMIT NO.:

85-03

ADDRESS:

P.O. BOX 557, WALNUT COVE, NC 27052

OWNER (print):

DUKE POWER CO.

DRILLING CONTRACTOR:

DUKE POWER CO.

REGISTRATION NO.:

921

Casing Type: THREADED TRULOC PVC dia. 2 in. Grout Depth: from 0 to 30.0 ft. - dia. 6.2
Casing Depth: from 0 to 35.0 ft. - dia. 2 in. Bentonite Seal: from 30.0 to 33.0 ft. - dia. 6.2
Screen Type: SLOT-010 TRULOC PVC dia. 2 in. Sand/Gravel PK: from 33.0 to 36.7 ft. - dia. 1.25
Screen Depth: from 35.0 to 35.0 ft. - dia. 2 in. Total Well Depth: from 0 to 36.7 ft. - dia. 6.25

Static Water Level: 74.5 feet from top of casing

Date Measured 8/10/89

Yield (gpm): N/A Method of Testing: N/A Casing is 2.5 feet above land surface

DRILLING LOG

DEPTH

FM

TO

FORMATION DESCRIPTION

OB-1

SEE ATTACHED SOIL TEST

BORING FIELD REPORT

FOR OB-1 @

FLYASH LANDFILL

LOCATION SKETCH

(show distance to numbered roads, or other map reference points)

REMARKS:

THIS WELL IS FOR DETERMINATION
OF WATER TABLE ONLY.

DATE:

8-11-89

SIGNATURE:

David L. Dickson

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BROWN CREEK

SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLYASH LANDFILL MW'SGROUND SURFACE ELEV. N/ADATE 8-9-89WEATHER WARMHRS. DRILLING N/AHRS. MOVING N/AINSPECTOR D. DICKEYBORING NO. DB-1

| SAMPLING | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|----|-------|----|---|
| 1ST 6" | 2ND 6" | 3RD 6" | | | | |
| | | | | 0 | | AD-2 DRILL RIG #2555 USING 6" ϕ AUGER |
| 1 4.1 | 5.6 | 8 | 7 | 10 | | DARK GRAY ASH |
| 2 9.1 | 10.6 | 6 | 5 | 5 | 10 | DARK GRAY ASH |
| 3 14.1 | 15.6 | 8 | 9 | 10 | 15 | DARK GRAY ASH |
| 4 19.1 | 20.6 | 8 | 8 | 8 | 20 | DARK GRAY ASH |
| 5 24.1 | 25.6 | 7 | 7 | 8 | 25 | DARK GRAY ASH |
| 6 29.1 | 30.6 | 8 | 8 | 9 | 30 | DARK GRAY ASH |
| 7 34.1 | 35.6 | 9 | 17 | 22 | 35 | DARK GRAY ASH |
| 8 39.1 | 40.6 | 4 | 7 | 8 | 40 | DARK GRAY ASH |

| | | |
|--|------------------------------|-----------|
| BORING TERMINATED: <u>86.9</u> | METHOD OF ADVANCING BORING | DEPTH |
| BORING REFUSAL: <u>AUGER @ 86.5'</u> | POWER AUGER | 0 TO 86.9 |
| WATER TOB DEPTH: <u>83.5' @ 5:00 P.M. 8-9-89</u> | HAND CHOP: W/MUD: W/WATER | - TO - |
| WATER 24 HR: DEPTH: <u>72.0' @ 7:30 A.M. 8-10-89</u> | ROTARY DRILL: W/MUD: W/WATER | - TO - |
| WATER LOSSES: <u>N/A</u> | DIAMOND CORE | - TO - |
| CASING SIZE: <u>N/A</u> LENGTH: <u>0</u> | | |

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE
1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BELWUS CREEK
SOIL TEST BORING FIELD REPORT

JOB NO. N/ASTARTING TIME N/AJOB NAME FLYASH LANDFILL NW'SGROUND SURFACE ELEV. N/AHRS. DRILLING N/A HRS. MOVING N/ADATE 8-9-89WEATHER WARMINSPECTOR D. DICKSON BORING NO. 03-1

| SAMPLING | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|------|-------|----|---|
| 1ST 6" | 2ND 6" | 3RD 6" | | | | |
| | | | | 40 | | |
| 9 44.1 | 45.6 | 5 | 2 3 | 45 | | DARK GRAY ASH. |
| | | | | | | SAMPLE #9 IS DAMP |
| 10 49.1 | 50.6 | 5 | 3 6 | 50 | | DARK GRAY ASH |
| | | | | | | 53.5 |
| 11 54.1 | 55.6 | 5 | 6 8 | 55 | | YELLOWISH RED MICA. SILTY FINE TO MED. SAND |
| 12 59.1 | 60.6 | 6 | 7 10 | 60 | | YELLOWISH RED MICA. SILTY FINE TO MEDIUM SAND. |
| 13 64.1 | 65.6 | 5 | 7 9 | 65 | | REDDISH YELLOW MICA. SILTY FINE TO MEDIUM SAND. |
| 14 69.1 | 70.6 | 4 | 6 9 | 70 | | YELLOW SILTY FINE TO MEDIUM SAND |
| 15 74.1 | 75.6 | 3 | 4 7 | 75 | | BROWNISH YELLOW SILTY FINE TO MEDIUM SAND |
| 16 79.1 | 80.6 | 6 | 7 10 | 80 | | YELLOWISH BROWN SILTY FINE TO MEDIUM SAND. |

BORING TERMINATED @ 86.9

BORING REFUSAL AUGER @ 86.9

WATER TOB DEPTH 64.5 @ 11:00 A.M. 8-9-89

WATER 24 HR: DEPTH 72.0 @ 7:30 A.M. 8-10-89

WATER LOSSES N/A

CASING SIZE N/A LENGTH 0

METHOD OF ADVANCING BORING

DEPTH

POWER AUGER

0 TO 86.9

HAND CHOP. W/MUD. W/WATER

— TO —

ROTARY DRILL. W/MUD. W/WATER

— TO —

DIAMOND CORE

— TO —

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE
1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
PROJECT BELEWS CREEK

SOIL TEST BORING FIELD REPORT

JOB NO.

STARTING TIME

JOB NAME

GROUND SURFACE ELEV.

DATE _____

WEATHER Warm

INSPECTOR

BORING NO. 03 -

| SAMPLING | | | | SCALE | UD | SOIL CLASSIFICATION AND REMARKS |
|----------|--------|--------|----|-------|----|--|
| 1ST 6" | 2ND 6" | 3RD 6" | | | | |
| | | | | 80 | | |
| | | | | | | |
| | | | | | | |
| 17.84.1 | | | | | | |
| 85.6 | 17 | 22 | 36 | 85 | | PALE YELLOW MICH SILTY FINE TO COARSE SAND. |
| | | | | | | |
| | | | | | | |
| 18.82.1 | | | | | | |
| | | | | 90 | | — AUGER REFUSAL @ 86.9' — BORING TERMINATED |
| | | | | | | |
| | | | | 95 | | SET OBSERVATION WELL PER ATTACHED SKETCH. |
| | | | | | | |
| | | | | | | |
| | | | | 0 | | |
| | | | | | | |
| | | | | | | |
| | | | | 5 | | |
| | | | | | | |
| | | | | | | |
| | | | | 0 | | |
| | | | | | | |
| | | | | | | |
| | | | | 5 | | |
| | | | | | | |
| | | | | | | |
| | | | | 0 | | |

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED.

BORING REFUSAL

WATER TOB DEPTH.

WATER 24 HR: DEPTH

WATER LOSSES

CASING SIZE.

METHOD OF ADVANCING BORING

DEPTH

POWER AUGER

~~HAND CHOP. W/MUD. W/WATER~~

~~ROTARY DRILL: W/MUD: W/WATER~~

~~DIAMOND CORE~~

0 TO 869

— TO —

— TO —

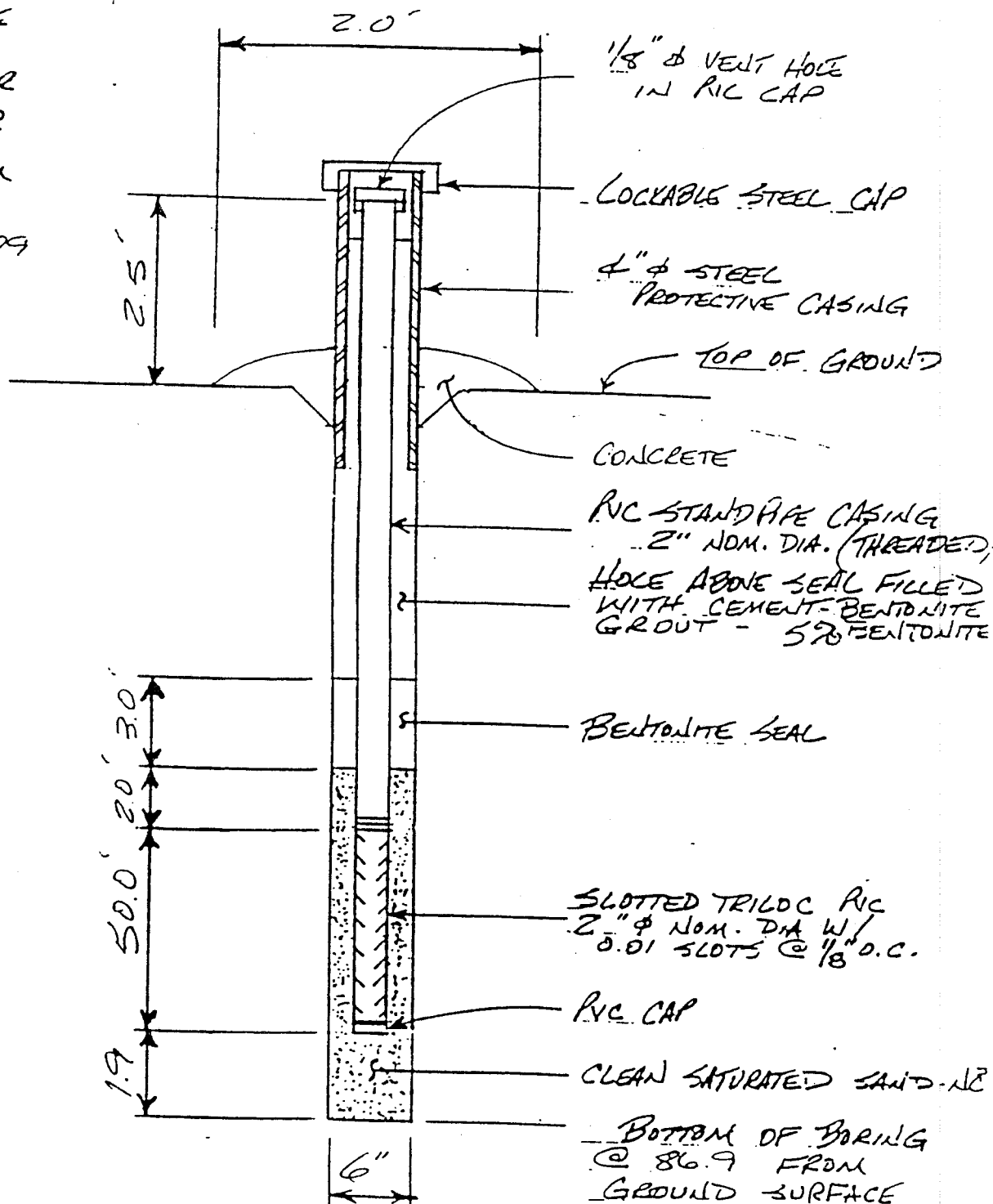
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Instrument No. DB-1Station N/AOffset N/ABy D. DICKSONDate 8-11-89NOTE:

NOT TO SCALE

INITIAL WATER
LEVEL RDG @
74.5' FROM
TOP/PIPE
ON 8.10.89

T/APE ELEV.
15



BORING LOG OB-2

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/22/03
 BORING DEPTH (ft): 45

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3/4" H.S.A.
 DRILL RIG: CME-55
 TOP OF CASING ELEVATION (ft):
 WATER LEVEL TOB (ft bgs): 30.2
 WATER LEVEL 24 HRS (ft bTOC): 33.23

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|---|--|---------------------------|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| - | | | | | | | Medium gray dense FLY ASH, slight moist. | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.94 ft. | | |
| 5 | SS-1 | 3.5-5.0 | 4-1-2 | 18 | | | Orange brown, tan micaceous fine sandy clayey SILT, moderately plastic, medium stiff, slightly moist. | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 26.0 ft. | | |
| 10 | SS-2 | 8.5-10.0 | 3-4-6 | 18 | | | Orange brown, tan, mottled medium gray micaceous fine sandy clayey SILT, slightly plastic, medium stiff, moist. | Grout Type: Portland Cement Interval: 0.0 - 19.7 ft. | | |
| 15 | SS-3 | 13.5-15.0 | 5-7-7 | 18 | | | Tan, medium gray, light orange, white micaceous medium to coarse sandy SILT w/layering present (saprolite), slightly moist. | Seal Type: Bentonite Chips Interval: 19.7 - 23.0 ft. | | |
| 20 | SS-4 | 18.5-20.0 | 12-13-14 | 18 | | | Tan, medium gray, light orange, white, mottled black micaceous medium to coarse sandy SILT w/layering present (saprolite), moist. | Filterpack Type: Filter Sand #2 Interval: 23.0 - 45.0 ft. | | |
| 25 | SS-5 | 23.5-25.0 | 15-17-24 | 18 | | | | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 26.0 - 41.0 ft. | | |
| 30 | SS-6 | 28.5-30.0 | 50/4-- | 18 | | | | | | |
| | SS-7 | 33.5-34.5 | 35-50- | 12 | | | | | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

1. ▽ = Water Level At Termination of Boring
 2. ▼ = Water Level After 24 Hours



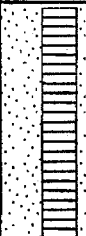
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 ENGINEERING • TESTING

3118 Spring Forest Road
 Raleigh, NC 27616

BORING LOG OB-2

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/22/03
 BORING DEPTH (ft): 45

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3 1/4" H.S.A.
 DRILL RIG: CME-55
 TOP OF CASING ELEVATION (ft):
 WATER LEVEL TOB (ft bgs): 30.2
 WATER LEVEL 24 HRS (ft bTOC): 33.23

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|---|--|---|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| 40 - | SS-8 | 38.5-39.5 | 50/3.5-- | 12 | | | Tan, medium gray, light orange, white, mottled black micaceous medium to coarse sandy SILT w/layering present (saprolite), wet-saturated. (continued) | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.94 ft. |  | |
| 45 - | SS-9 | 43.5-44.5 | 50/2-- | 12 | | | Auger refusal - boring terminated at 45.0 ft. | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 26.0 ft. | | |
| | | | | | | | | Grout Type: Portland Cement Interval: 0.0 - 19.7 ft. | | |
| | | | | | | | | Seal Type: Bentonite Chips Interval: 19.7 - 23.0 ft. | | |
| | | | | | | | | Filterpack Type: Filter Sand #2 Interval: 23.0 - 45.0 ft. | | |
| | | | | | | | | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 26.0 - 41.0 ft. | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

1. ▽ = Water Level At Termination of Boring
 2. ▼ = Water Level After 24 Hours



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 Raleigh, NC 27616

BORING LOG OB-3

SHEET 1 OF 2

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/22/03
 BORING DEPTH (ft): 50.5

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3 1/4" H.S.A.
 DRILL RIG: B-53
 TOP OF CASING ELEVATION (ft):
 WATER LEVEL TOB (ft bgs): 31.7
 WATER LEVEL 24 HRS (ft bTOC): 31

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|---|--|---------------------------|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| - | | | | | | | Medium gray dense FLY ASH, dry. | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.89 ft. | | |
| 5 | SS-1 | 3.5-5.0 | 24-38-19 | 18 | | | Medium gray dense FLY ASH, moist. | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 25.0 ft. | | |
| 10 | SS-2 | 8.5-1.0 | 4-1-8 | 18 | | | | Grout Type: Portland Cement Interval: 0.0 - 18.5 ft. | | |
| 15 | SS-3 | 13.5-15.0 | 12-14-18 | 18 | | | | Seal Type: Bentonite Chips Interval: 18.5 - 22.3 ft. | | |
| | | | | | | | Tan, orange brown micaceous fine to medium sandy SILT, moist. | Filterpack Type: Filter Sand #2 Interval: 22.3 - 50.5 ft. | | |
| 20 | SS-4 | 18.5-20.0 | 7-9-9 | 18 | | | Tan, orange brown micaceous fine to medium sandy SILT w/layering present, moist. | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 25.0 - 40.0 ft. | | |
| 25 | SS-5 | 23.5-25.0 | 14-17-3 | 18 | | | | | | |
| | | | | | | | Tan, light orange, light gray, white micaceous fine to medium sandy SILT w/layering present (saprolite), moist. | | | |
| 30 | SS-6 | 28.5-30.0 | 16-13-20 | 18 | | | | | | |
| | | | | | | | Tan, light orange, light gray, black, white sandy SILT w/layering present, saturated. | | | |
| | SS-7 | 33.5-34.5 | 30-50- | 12 | | | | | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

- ▽ = Water Level At Termination of Boring
- ▼ = Water Level After 24 Hours



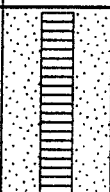
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 ENVIRONMENTAL SERVICES
 ENGINEERING • TESTING
 3118 Spring Forest Road
 Raleigh, NC 27616

BORING LOG OB-3

SHEET 2 OF 2

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/22/03
 BORING DEPTH (ft): 50.5

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3/4" H.S.A.
 DRILL RIG: B-53
 TOP OF CASING ELEVATION (ft):
 WATER LEVEL TOB (ft bgs): 31.7
 WATER LEVEL 24 HRS (ft bTOC): 31

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|---|--|---|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| 40 - | SS-8 | 38.5-39.5 | 50/5-- | 12 | | | Tan, light orange, light gray, black, white sandy SILT w/layering present, saturated. (continued) | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.89 ft. |  | |
| 45 - | SS-9 | 43.5-44.5 | 50/5-- | 12 | | | | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 25.0 ft. | | |
| | | | | | | | Tan, white, orange brown, mottled black medium to coarse sandy SILT (saprolite), saturated. | Grout Type: Portland Cement Interval: 0.0 - 18.5 ft. | | |
| 50 - | SS-10 | 48.5-49.0 | 50/3-- | 6 | | | | Seal Type: Bentonite Chips Interval: 18.5 - 22.3 ft. | | |
| | | | | | | | Auger refusal - boring terminated at 50.5 ft. | Filterpack Type: Filter Sand #2 Interval: 22.3 - 50.5 ft. | | |
| | | | | | | | | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 25.0 - 40.0 ft. | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

1. ▽ = Water Level At Termination of Boring
 2. ▼ = Water Level After 24 Hours



















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BORING LOG OB-4

SHEET 1 OF 2

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/27/03
 BORING DEPTH (ft): 53

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3 1/4" H.S.A.
 DRILL RIG: CME-55
 TOP OF CASING ELEVATION (ft):
 WATER LEVEL TOB (ft bgs): 23
 WATER LEVEL 24 HRS (ft bTOC):

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|---|--|--|---|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| - | | | | | |  | GRAVEL Medium gray dense FLY ASH, dry. | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.81 ft. |  | - |
| 5 | SS-1 | 3.5-5.0 | 6-7-11 | 18 | |  | Orange brown clayey fine to coarse sandy SILT, moist. | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 16.3 ft. |  | - |
| 10 | SS-2 | 8.5-10.0 | 5-3-2 | 18 | |  | Medium gray dense FLY ASH, moist. | Grout Type: Portland Cement Interval: 0.0 - 11.0 ft. |  | - |
| 15 | SS-3 | 13.5-15.0 | 29-50- | 18 | |  | Medium gray dense FLY ASH, moist. | Seal Type: Bentonite Chips Interval: 11.0 - 14.0 ft. |  | - |
| 20 | SS-4 | 18.5-20.0 | 11-11-14 | 18 | |  | Medium gray clayey silty fine to medium SAND, saturated. | Filterpack Type: Filter Sand #2 Interval: 14.0 - 53.0 ft. |  | - |
| 25 | SS-5 | 23.5-25.0 | WR-WR-3 | 18 | |  | Medium gray clayey silty fine to medium SAND, saturated. | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 16.3 - 31.3 ft. |  | - |
| 30 | SS-6 | 28.5-30.0 | 4-5-4 | 18 | |  | Medium gray clayey silty fine to medium SAND, saturated. | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 16.3 - 31.3 ft. |  | - |
| - | SS-7 | 33.5-35.0 | 2-2-3 | 18 | |  | Medium gray clayey silty fine to medium SAND, saturated. | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 16.3 - 31.3 ft. |  | - |

NOTES

SS = Split Spoon Sample
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 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

-  = Water Level At Termination of Boring
-  = Water Level After 24 Hours



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BORING LOG OB-4

SHEET 2 OF 2

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/27/03
 BORING DEPTH (ft): 53

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3 1/4" H.S.A.
 DRILL RIG: CME-55
 TOP OF CASING ELEVATION (ft):
 WATER LEVEL TOB (ft bgs): 23
 WATER LEVEL 24 HRS (ft bTOC):

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|--|--|---------------------------|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| 38.5-39.5 | SS-8 | 38.5-39.5 | 2-3-3 | 12 | | | Medium gray clayey silty fine to medium SAND, saturated. (continued) | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.81 ft. | | |
| 43.5-44.5 | SS-9 | 43.5-44.5 | 1-2-3 | 12 | | | Medium gray, black, white gravelly coarse SAND, saturated. | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 16.3 ft. | | |
| 48.5-49.0 | SS-10 | 48.5-49.0 | 50/25-- | 6 | | | Medium gray to black silty SAND, moist to wet. | Grout Type: Portland Cement Interval: 0.0 - 11.0 ft. | | |
| | | | | | | | | Seal Type: Bentonite Chips Interval: 11.0 - 14.0 ft. | | |
| | | | | | | | | Filterpack Type: Filter Sand #2 Interval: 14.0 - 53.0 ft. | | |
| | | | | | | | Auger refusal - boring terminated at 53.0 ft. | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 16.3 - 31.3 ft. | | |

NOTES

SS = Split Spoon Sample
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 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

- ▽ = Water Level At Termination of Boring
- ▼ = Water Level After 24 Hours



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BORING LOG OB-5

SHEET 1 OF 2

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/27/03
 BORING DEPTH (ft): 60

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3 1/4" H.S.A.
 DRILL RIG: CME-55
 TOP OF CASING ELEVATION (ft):
 WATER LEVEL TOB (ft bgs): 30
 WATER LEVEL 24 HRS (ft bTOC): 31

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|--|--|---------------------------|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| - | | | | | | | GRAVEL Tan, orange brown, black, white fine to coarse sandy SILT w/layering present, moist. | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.79 ft. | | - |
| 5 | SS-1 | 3.5-5.0 | 4-5-7 | 18 | | | | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 21.8 ft. | | |
| 10 | SS-2 | 8.5-1.0 | 7-8-8 | 18 | | | | Grout Type: Portland Cement Interval: 0.0 - 15.0 ft. | | |
| 15 | SS-3 | 13.5-15.0 | 5-7-8 | 18 | | | Orange brown, mottled white and black fine sandy SILT w/layering present, moist. | Seal Type: Bentonite Chips Interval: 15.0 - 18.0 ft. | | |
| 20 | SS-4 | 18.5-20.0 | 7-9-10 | 18 | | | | Filterpack Type: Filter Sand #2 Interval: 18.0 - 36.8 ft. | | |
| 25 | SS-5 | 23.5-25.0 | 4-6-7 | 18 | | | | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 21.8 - 36.8 ft. | | |
| 30 | SS-6 | 28.5-30.0 | 5-7-8 | 18 | | | Light gray, orange brown, tan, fine to medium sandy SILT, moist. | | | |
| | SS-7 | 33.5-34.5 | 5-8-8 | 12 | | | | | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

1. ∇ = Water Level At Termination of Boring
 2. ▼ = Water Level After 24 Hours



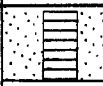
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BORING LOG OB-5

PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/27/03
 BORING DEPTH (ft): 60

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3/4" H.S.A.
 DRILL RIG: CME-55
 TOP OF CASING ELEVATION (ft):
 WATER LEVEL TOB (ft bgs): 30
 WATER LEVEL 24 HRS (ft bTOC): 31

SHEET 2 OF 2

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|--|--|---|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| 40 | SS-8 | 38.5-39.5 | 5-6-9 | 12 | | | Light gray, orange brown, tan fine to medium sandy SILT w/black and white layering (seams), wet. | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.79 ft. |  | |
| 45 | SS-9 | 43.5-44.5 | 11-26-36 | 12 | | | Tan, black, white silty fine to coarse SAND, wet-saturated. | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 21.8 ft. | | |
| 50 | SS-10 | 48.5-49.0 | 31-50/4- | 6 | | | | Grout Type: Portland Cement Interval: 0.0 - 15.0 ft. | | |
| 55 | SS-11 | 53.5-54.0 | 50/3-- | 6 | | | | Seal Type: Bentonite Chips Interval: 15.0 - 18.0 ft. | | |
| 60 | SS-12 | 58.5-59.0 | 50/2-- | 6 | | | | Filterpack Type: Filter Sand #2 Interval: 18.0 - 36.8 ft. | | |
| | | | | | | | Gray-brown silty fine to coarse SAND, saturated. | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 21.8 - 36.8 ft. | | |
| | | | | | | | Auger refusal - Boring terminated at 60.0 ft. | | | |

NOTES

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 2. ▼ = Water Level After 24 Hours



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BORING LOG OB-6

SHEET 1 OF 1



PROJECT: Duke Power - Belews Creek
 LOCATION: Belews Creek, NC
 PROJECT NO.: 1264-02-576A
 LOGGED BY: J. Drummond
 DATE DRILLED: 1/21/03
 BORING DEPTH (ft): 30.5

DRILLING CONTRACTOR: S&ME, Inc.
 DRILLING METHOD: 3/4" H.S.A.
 DRILL RIG: B-53
 TOP OF CASING ELEVATION (ft):
 WATER LEVEL TOB (ft bgs):
 WATER LEVEL 24 HRS (ft bTOC): 19.51

| Sample Information | | | | | | Symbol | Description & Remarks | Well Construction Details | Well Construction Graphic | Elevation (feet) |
|--------------------|---------------|------------------------|--------------------------|-------------------|--------------|--------|---|--|---------------------------|------------------|
| Depth (feet) | Sample Number | Sample Interval (feet) | Blow Counts per 6 inches | Recovery (inches) | Rock RQD (%) | | | | | |
| 5 | | | | | | | Medium to dark gray dense FLY ASH, dry. | Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.63 ft. | | |
| 10 | SS-1 | 10.5-12.0 | 5-7-13 | 18 | | | Tan, orange brown, mottled gray fine sandy SILT, moist to dry. | Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 15.0 ft. | | |
| 15 | SS-2 | 15.0-15.5 | 50/4-- | 6 | | | Tan, light orange, white fine sandy SILT w/layering present, dry-moist. | Grout Type: Portland Cement Interval: 0.0 - 10.0 ft. | | |
| 20 | SS-3 | 20.0-20.5 | 50/3-- | 6 | | | Tan, light orange fine to coarse silty SAND, saturated. | Seal Type: Bentonite Chips Interval: 10.0 - 13.0 ft. | | |
| 25 | SS-4 | 25.0-25.5 | 50/1-- | 6 | | | | Filterpack Type: Filter Sand #2 Interval: 13.0 - 30.5 ft. | | |
| 30 | | | | | | | Auger refusal - boring terminated at 30.5 ft. | Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 15.0 - 30.0 ft. | | |

NOTES

SS = Split Spoon Sample
 ST = Shelby Tube Sample
 S = Bulk Sample
 R = Core Run
 RS = Rock Sample
 REC = Rock Core Recovery
 RQD = Rock Quality Designation

1.  = Water Level At Termination of Boring
2.  = Water Level After 24 Hours

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| | | | | | | | |
|--|--|--|--|------------------------|--|--|--|
| PROJECT: Duke Power - BCSS - Pine Hall Rd Landfill Belaws Creek, NC 1356-03-853 | | | | BORING LOG OB-7 | | | |
| DATE DRILLED: 12/8/03 | | ELEVATION: | | NOTES: | | | |
| DRILLING METHOD: 3/4" H.S.A. | | BORING DEPTH: 26.0 | | | | | |
| LOGGED BY: Julie Petersen | | WATER LEVEL: 18 ft bls on 12-9-03 | | | | | |
| DRILLER: Jay Little, NC Cert No. 2717 | | DRILL RIG: Diedrich D-50 | | | | | |

| DEPTH (feet) | GRAPHIC LOG | MATERIAL DESCRIPTION | WATER LEVEL | ELEVATION (feet) | SAMPLE NO/TYPE | STANDARD PENETRATION TEST DATA (blows/ft) | | | | | N VALUE |
|-----------------|----------------|--|-------------|---------------------|-------------------|--|----|----|----|----|---------|
| | | | | | | 10 | 20 | 30 | 60 | 80 | |
| 5 | | SAPROLITE: Reddish Tan to Tan Silty Medium to Fine SAND with Manganese Staining | | | 1 | | | | | | 61 |
| 10 | | SAPROLITE: Tannish Red and Olive Green Fine Sandy SILT with Manganese Staining | | | 2 | | | | | | 49 |
| 15 | | PARTIALLY WEATHERED ROCK: When Sampled Becomes Tan Silty Medium to Fine SAND with Manganese Staining | | | 3 | | | | | | 50/4 |
| 20 | | | | | 4 | | | | | | 50/0 |
| 25 | | BEDROCK: Sampled as Granitic Gneiss Run #1 21.9 to 26 ft bls REC = 100%, RQD = 43% Boring Terminated at 26 ft bls | | | | | | | | | |

1. BORING AND SAMPLING IS IN ACCORDANCE WITH ASTM D-1586.
 2. PENETRATION (N-VALUE) IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.



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Charlotte, NC 28273

COMPLETION REPORT OF WELL No. OB-7

Sheet 1 of 1

PROJECT: **Duke Power - BCSS - Pine Hall Rd Landfill**
 PROJECT NO: **1356-03-853**
 PROJECT LOCATION: **Belews Creek, NC**

WATER LEVEL: **18 ft bls on 12-9-03**

DRILLING CONTRACTOR: **S&ME, INC.**

DRILLING METHOD: **3 1/2" H.S.A.**

DATE DRILLED: **12/8/03**

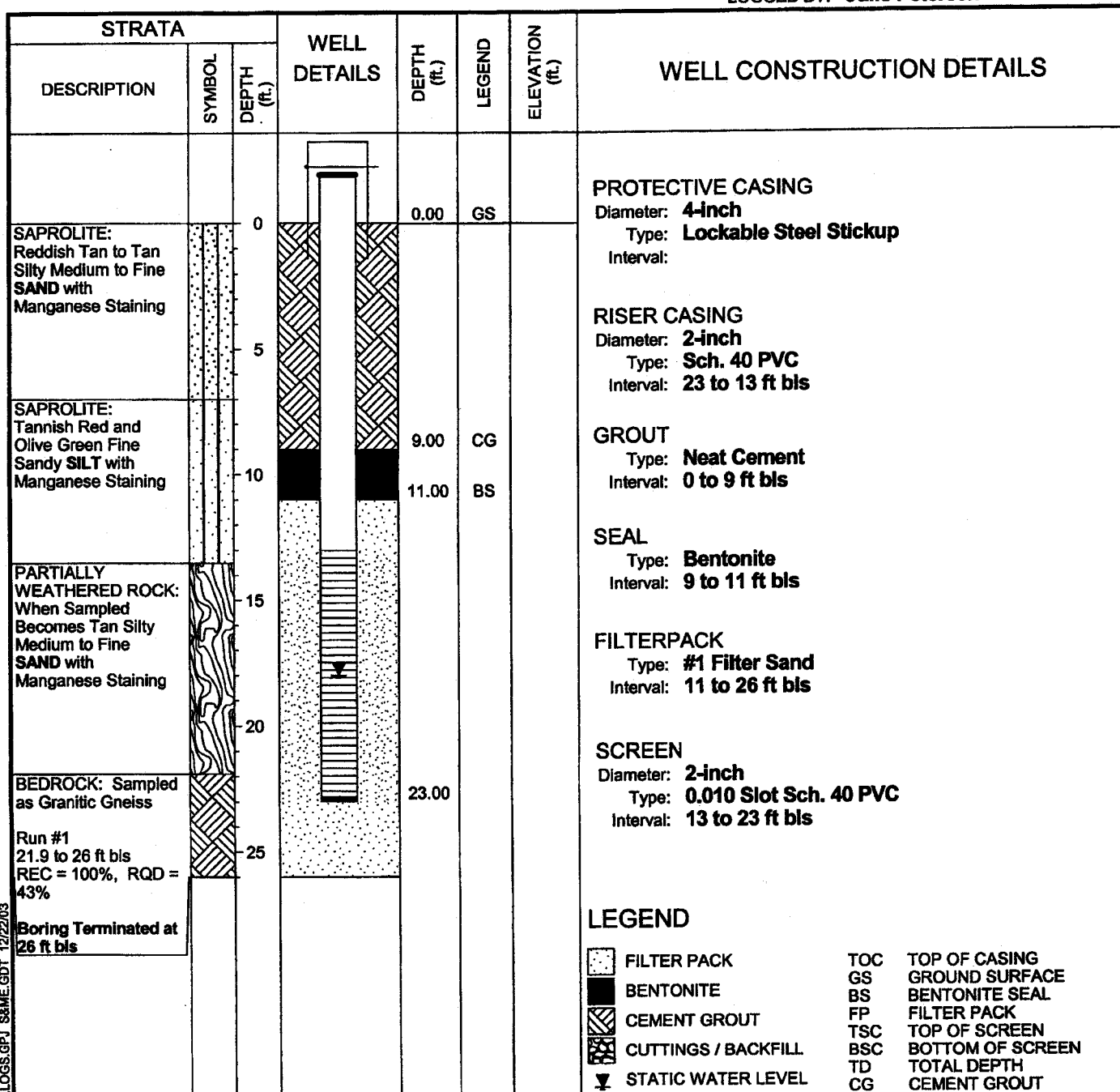
LATITUDE:

LONGITUDE:

TOP OF CASING ELEVATION:

DATUM:

LOGGED BY: **Julie Petersen**



MONITORING WELL WELLOGS.GPJ S&ME.GDT 12/22/03

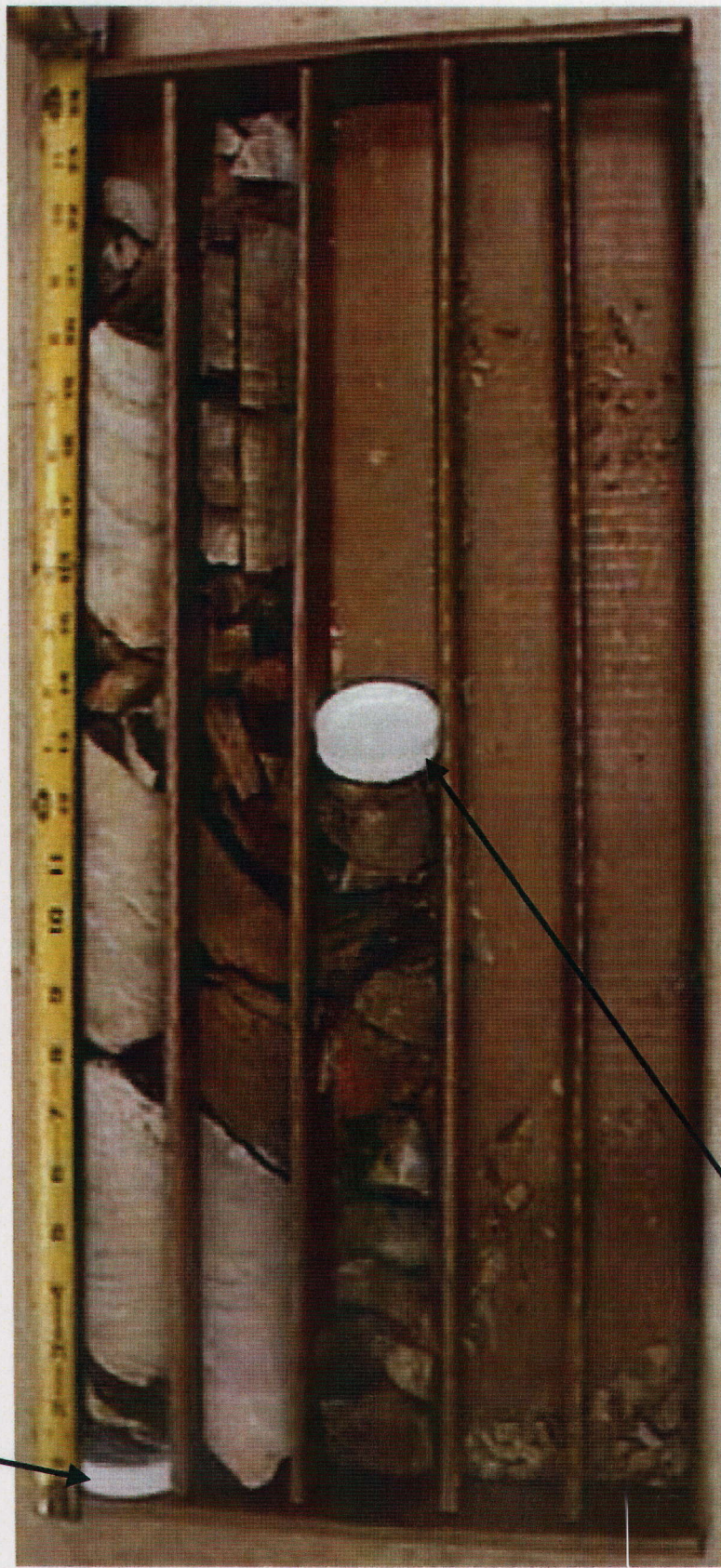


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 Charlotte, NC 28273

**COMPLETION REPORT OF
 WELL No. OB-7**

Sheet 1 of 1

Start - 21.9 ft bls



21.9 to 26 ft bls - Granitic Gneiss

REC = 100%
RQD = 43%

End - 26 ft bls

| | |
|-------------|----------|
| SCALE: | As Shown |
| CHECKED BY: | |
| DRAWN BY: | JRP |
| DATE: | 12/22/03 |



FIGURE NO.

ROCK CORE OB-7
Belews Creek Steam Station - Pine Hall Rd Landfill
Belews Creek, North Carolina

JOB NO. 1356-03-853

| PROJECT: Duke Power Belews Creek, North Carolina 1584-04-864 | | | | BORING LOG OB-8 | | | | | | | | |
|--|----------------|--|-------------|-------------------------|-------------------|--|----|----|----|----|---------|------|
| DATE DRILLED: 3/10/04 | | ELEVATION: | | NOTES: | | | | | | | | |
| DRILLING METHOD: 3 1/4" HSA/HQ | | BORING DEPTH: 21.5 | | | | | | | | | | |
| LOGGED BY: L. Birdler | | WATER LEVEL: | | | | | | | | | | |
| DRILLER: L. Morrison | | DRILL RIG: Mobile B-57 | | | | | | | | | | |
| DEPTH (feet) | GRAPHIC LOG | MATERIAL DESCRIPTION | WATER LEVEL | ELEVATION (feet-MSL) | SAMPLE NO/TYPE | STANDARD PENETRATION TEST DATA (blows/ft) | | | | | N VALUE | |
| | | | | | | 10 | 20 | 30 | 60 | 80 | | |
| 5 | | Fill: Brown Tan Fine Sandy SILT with Weathered Rock Fragments and Debris | | | 1 | | | | | | | 12 |
| 10 | | Residuum: Tan Brown Fine Slightly Sandy SILT with slight Mn Oxidation Staining (Moist 9', Saturated 11') | | | 2 | | | | | | | 42 |
| 15 | | White Gray Silty Fine to Coarse SAND with 1/4" to 3/4" Quartz Fragments | | | 3 | | | | | | | 23 |
| 20 | | Partially Weathered Rock: sampled as Gray Brown Micaceous Fine to Coarse Sandy SILT with Relict Structure and 1/2" diameter Rock Fragments; Auger Refusal at 21.5' | | | 4 | | | | | | | 50/1 |

BORING LOG 1584-04-864 DUKE POWER G.P.I. S&ME GDT 3/17/04

NOTES:

1. THIS LOG IS ONLY A PORTION OF A REPORT FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

Page 1 of 1

COMPLETION REPORT OF WELL NO. OB-8

| | | | |
|----------------------|------------------|--------------------------------|-----------|
| PROJECT: | Duke Power | WATER LEVEL TOB (FT.): | 20 |
| PROJECT NO: | 1040-04-864 | WATER LEVEL 24 HRS (FT.): | 7 |
| PROJECT LOCATION: | Belews Creek, NC | TOP OF CASING ELEVATION (FT.): | |
| DRILLING CONTRACTOR: | | BORING DEPTH (FT.): | 21.5 |
| DRILLING METHOD: | 3 1/4" HSA/HQ | LOGGED BY: | L. Butler |
| DATE DRILLED: | 3/10/2004 | | |

| STRATA | | | WELL DETAILS | DEPTH (feet) | LEGEND | SPT (N-value) | ELEVATION (feet) | FID (ppm) | PID (ppm) | WELL CONSTRUCTION DETAILS |
|---|--------|-----------------|-----------------|-----------------|--------|------------------|---------------------|--------------|--------------|---|
| DESCRIPTION | SYMBOL | DEPTH (feet) | | | | | | | | |
| Ground Surface | | 0.0 | | | | | | | | PROTECTIVE CASING Diameter: Type: Interval: |
| Brown Tan with Weathered Rock Fragments and Debris | | | | 0.1 | CG | | | | | OUTER CASING Diameter: Type: Length: |
| | | | | 3.2 | BS | | | | | RISER CASING Diameter: 2" Type: PVC Interval: +2.5-5.3 |
| | | | | 4.3 | BS | 7 | | | | GROUT Type: Neat Cement Grout Interval: 0-3.2 |
| Residuum: Tan Brown Fine Slightly Sandy SILT with slight Mn Oxidation Staining (Moist 9', Saturated 11') | | 5.0 | | 5.3 | TSC | | | | | SEAL Type: Bentonite Interval: 3.2-4.3 |
| | | | | | | 25 | | | | FILTERPACK Type: #1 Sand Interval: 4.3-21.5 |
| White Gray Silty Fine to Coarse SAND with 1/4" to 3/4" Quartz Fragments | | 10.0 | | | | | | | | SCREEN Diameter: 2" Type: 0.020 Interval: 5.3-14.7 |
| | | | | 14.7 | BSC | 13 | | | | |
| | | | | 15.2 | TD | | | | | |
| Partially Weathered Rock; sampled as Gray Brown Micaceous Fine to Coarse Sandy SILT with Relict Structure and 1/2" diameter Rock Fragments; Auger Refusal at 21.5' | | 15.0 | | | | | | | | LEGEND ▽ = Water Level At Termination of Boring (TOB) ▼ = Water Level After 24 Hours BS = Bentonite Seal FP = Filter Pack CG = Cement Grout BSC = Bottom of Screen REC = Core Recovery RQD = Rock Quality Designation |
| | | 20.0 | | 20.5 | FP | | | | | |

NOTES:



3109 Spring Forest Road
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COMPLETION REPORT
OF WELL NO. OB-8

| PROJECT: | | Duke Power Belews Creek, North Carolina 1584-04-864 | | BORING LOG OB-9 | | | |
|--------------------------------|----------------|--|-------------|-------------------------|-------------------|--|---------|
| DATE DRILLED: 3/11/04 | | ELEVATION: | | NOTES: | | | |
| DRILLING METHOD: 3 1/4" HSA/HQ | | BORING DEPTH: 46.4 | | | | | |
| LOGGED BY: L. Butler | | WATER LEVEL: | | | | | |
| DRILLER: L. Morrison | | DRILL RIG: Mobile B-57 | | | | | |
| DEPTH (feet) | GRAPHIC LOG | MATERIAL DESCRIPTION | WATER LEVEL | ELEVATION (feet-MSL) | SAMPLE NO/TYPE | STANDARD PENETRATION TEST DATA (blows/ft) | N VALUE |
| | | | | | | 10 20 30 60 80 | |
| 5 | | Residuum: Brown Tan Fine Slightly Sandy SILT | | | 1 | | 18 |
| 10 | | Tan Brown Micaceous Fine to Medium Sandy SILT ; Mn Oxidation, 45 degree relict structure, weathered rock fragments | | | 2 | | 63 |
| 15 | | Gray White Fine Very Sandy SILT ; feldspathic | | | 3 | | 67 |
| 20 | | Black Gray and Orange Brown Slightly Micaceous Fine to Medium Sandy SILT with Partially Weathered Rock Fragments; damp | | | 4 | | 50/3 |
| 25 | | Partially Weathered Rock: sampled as White Gray Very Silty Fine SAND ; slight fissile texture, damp | | | 5 | | 50/6 |
| 30 | | Partially Weathered Rock: sampled as Tan and Orange Brown Very Micaceous Fine to Medium Sandy SILT ; Mn Oxidation Stains fissile texture, 45 degree relict structure; gneissic rock seams 31 feet to 35 feet; Auger Refusal at 35.5 feet | | | 6 | | 50/4 |
| 35 | | | | | 7 | | 50/1 |
| 40 | | 1st Run: Biotite Gneiss interlayered with quartz-feldspathic gneiss; high weathered from 35.5 to 36' and 38' to 39'; highly fractured parallel to foliation (45 degrees), REC=92%, RQD=26% | | | | | |
| 45 | | 2nd Run: Biotite Gneiss; moderately weathered, REC=40%, RQD=0% | | | | | |
| | | 3rd Run: Possible Partially Weathered Rock; No recovery; Termination at 47.5 feet | | | | | |

NOTES:

- THIS LOG IS ONLY A PORTION OF A REPORT FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
- BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
- STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
- WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

Page 1 of 1

COMPLETION REPORT OF WELL NO. OB-9

| | | | |
|----------------------|------------------|--------------------------------|-----------|
| PROJECT: | Duke Power | WATER LEVEL TOB (FT.): | |
| PROJECT NO: | 1040-04-864 | WATER LEVEL 24 HRS (FT.): | 33.25 |
| PROJECT LOCATION: | Belews Creek, NC | TOP OF CASING ELEVATION (FT.): | |
| DRILLING CONTRACTOR: | | BORING DEPTH (FT.): | 50 |
| DRILLING METHOD: | 3 1/4" HSA/HQ | LOGGED BY: | L. Butler |
| DATE DRILLED: | 3/11/2004 | | |

| STRATA | | SYMBOL | DEPTH (feet) | WELL DETAILS | DEPTH (feet) | LEGEND | SPT (N-value) | ELEVATION (feet) | FID (ppm) | PID (ppm) | WELL CONSTRUCTION DETAILS |
|--|--|--------|--------------|--------------|--------------|--------|---------------|------------------|-----------|-----------|--|
| DESCRIPTION | | | | | | | | | | | |
| Ground Surface | | | 0.0 | | | | | | | | PROTECTIVE CASING Diameter: Type: Interval: |
| Residuum: Brown Tan Fine Slightly Sandy SILT | | | 0.1 | | 0.1 | CG | 10 | | | | OUTER CASING Diameter: Type: Length: |
| Tan Brown Micaceous Fine to Medium Sandy SILT; Mn Oxidation, 45 degree relict structure, weathered rock fragments | | | 5.0 | | | | 33 | | | | RISER CASING Diameter: 2" Type: PVC Interval: +2.5-36.5 |
| Gray White Fine Very Sandy SILT; feldspathic | | | 10.0 | | | | 35 | | | | GROUT Type: Neat Cement Grout Interval: 0-31.5 |
| Black Gray and Orange Brown Slightly Micaceous Fine to Medium Sandy SILT with Partially Weathered Rock Fragments; damp | | | 15.0 | | | | | | | | SEAL Type: Bentonite Interval: 31.5-33.5 |
| Partially Weathered Rock: sampled as White Gray Very Silty Fine SAND; slight fissile texture, damp | | | 20.0 | | | | 50/5 | | | | FILTERPACK Type: #1 Sand Interval: 33.5-46.4 |
| Partially Weathered Rock: sampled as Tan and Orange Brown Very Micaceous Fine to Medium Sandy SILT; Mn Oxidation Stains fissile texture, 45 degree relict structure; gneissic rock seams 31 feet to 35 feet; | | | 25.0 | | | | | | | | SCREEN Diameter: 2" Type: 0.020 Interval: 36.5-45.9 |
| Auger Refusal at 35.5 feet | | | 30.0 | | 31.5 | BS | | | | | |
| 1st Run: Biotite Gneiss interlayered with quartz-feldspathic gneiss; high weathered from 35.5 to 36' and 38' to 39'; highly fractured parallel to foliation (45 degrees), REC=92%, RQD=26% | | | 35.0 | | 33.5 | FP | | | | | |
| 2nd Run: Biotite Gneiss; moderately weathered, REC=40%, RQD=0% | | | 40.0 | | 36.5 | TSC | | | | | |
| 3rd Run: Possible Partially Weathered Rock; No recovery; Termination at 47.5 feet | | | 45.0 | | 45.9 | BSC | | | | | |
| | | | 50.0 | | 46.4 | TD | | | | | |

NOTES:



3109 Spring Forest Road
Raleigh, NC 27616

COMPLETION REPORT
OF WELL NO. OB-9

LEGEND
 ▽ = Water Level At Termination of Boring (TOB)
 ▼ = Water Level After 24 Hours
 BS = Bentonite Seal
 FP = Filter Pack
 CG = Cement Grout
 BSC = Bottom of Screen
 REC = Core Recovery
 RQD = Rock Quality Designation



Run 1 (35.5 - 40.5')

Recovery: 92%

RQD: 26%

Rock Type: Biotite Gneiss

Run 2 (40.5 - 42.5')

Recovery: 40%

RQD: 0%

Rock Type: Biotite Gneiss

Run 3 (42.5 - 47.5')

Recovery: 0%

RQD: 0%

Rock Type: Biotite Gneiss



Pine Hall Road Fly Ash Landfill

Duke Power - Belews Creek Steam Station

Belews Creek, Stokes County, North Carolina

S&ME Project No. 1040-04-864

Boring: OB-9

Sample Depth: 35.5 - 45.5'


Box: 1 of 1


Logged By: L. Butler

**BELEWS CREEK PINEHALL ASH LANDFILL
GEOTECHNICAL BORING – LOGS
PZ- SERIES**

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|------------------|--|------|-------|------------|
| 0 | | | | | | Boring drilled to 52.0' with Casing Advancer. | | | 885.7 |
| | | | | | | 2 - 1" Piezometers installed in this boring. S-1 screened from 41.0' to 44.0'. S-2 screened from 49.0' to 52.0' | | | |
| 5 | | | | | | | | | 880.7 |
| 10 | | | | | | Lost water at 10.0'. | | | 875.7 |
| 15 | | | | | | | | | 870.7 |
| 20 | | | | | | | | | 865.7 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|-------|---------------|-------|--------|---|-----------------|-----------------------------------|----|-------------|
| | | Depth of (ft) | | | Client: Duke Energy Corporation | | Casing / Augers: | NW | Automatic |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Pine Hall Ash Landfill | | Split spoon 1: | | |
| 11/02/04 - S1 | 8:06a | n/a | 69.3' | 41.49' | Project No.: 024.0069.0000 | | Split spoon 2: | | |
| 11/02/04 - S2 | 8:06a | n/a | 69.3' | 42.63' | Location: Belews Creek, NC | | Core Barrel ID: | | |
| 11/05/04 - S1 | 7:58a | n/a | 69.3' | 42.04' | Drilling Contractor: S&ME | | Core Barrel Type: | | |
| 11/05/04 - S2 | 7:58a | n/a | 69.3' | 42.75' | Driller: Travis Costello | Rig: D-50 Track | Boring Logged By: C Arthur Medlin | | |
| Date Boring Completed: | | 11/01/04 | | | <div><p>Dwyer, Turbell & Associates, Inc. 2000 Highway 101, Suite 100, Raleigh, NC 27603</p></div> | | BORING PZ-01S | | |
| REFUSAL @ | | n/a | | | | | | | |
| Total Depth of Hole: | | 69.3' | | | | | | | |
| Page 1 of 3 | | | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|---|--------------------|------------|--|------------|---------------|-----------------------------------|--------------------------------------|------------|------------|
| 20 | | | | | | | | | 865.7 |
| 25 | | | | | | | | | 860.7 |
| 30 | | | | | | | | | 855.7 |
| 35 | | | | | | | | | 850.7 |
| 40 | | | | | | | | | 845.7 |
| 45 | | | | | | S-1 screened from 41.0' to 44.0'. | | | 840.7 |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | |
| Ground Surface Elev. (ft) | | 885.70 |  <small>Devine, Tarbell & Associates, Inc.</small> | | | | BORING PZ-01S Page 2 of 3. | | |
| Date Boring Completed: | | 10/29/2004 | | | | | | | |
| Boring Logged By: | | CAMedlin | | | | | | | |


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|---------------|-----------------------------------|------|------------|------------|
| 45 | | | | | | | | | 840.7 |
| 50 | | | | | | S-2 screened from 49.0' to 52.0'. | | | 835.7 |
| 55 | | | | | | Boring Terminated @ 52.0'. | | | 830.7 |
| 60 | | | | | | | | | 825.7 |
| 65 | | | | | | | | | 820.7 |
| 70 | | | | | | | | | 815.7 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| | | | |
|---------------------------|------------|--|--|
| Ground Surface Elev. (ft) | 885.70 |  <small>Dixie Tarbell & Associates, Inc. Geotechnical Engineering & Environmental Sciences</small> | BORING PZ-01S Page 3 of 3. |
| Date Boring Completed: | 10/29/2004 | | |
| Boring Logged By: | CAMedlin | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|-----------------|------------|-------------------|------------|---------------|---|------|-------|------------|
| 0 | | | | | | Boring Drilled with Casing Advancer. No sampling required. Approximately 2.0' of Soil Cap over the Ash. Install Temporary Well to measure static Water Level. ASH. | | | 888.5 |
| 5 | | | | | | | | | 883.5 |
| 10 | | | | | | SOIL from ~10.0' to 13.0'. | | | 878.5 |
| 15 | | | | | | | | | 873.5 |
| 20 | | | | | | | | | 868.5 |


Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|--------|---------------|--------|--------|--|--|-------------------|-----------------------------------|-------------|
| | | Depth of (ft) | | | Client: Duke Energy Corporation | | Casing / Augers: | NW | |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Pine Hall Ash Landfill | | Split spoon 1: | | |
| 10/22/04 | 12:20p | n/a | 100.0' | 84.3' | Project No.: 024.0069.0000 | | Split spoon 2: | | |
| 10/25/04 | 12:45p | n/a | 100.0' | 88.9' | Location: Belews Creek, NC | | Core Barrel ID: | | |
| 11/01/04 | 12:15p | n/a | 100.0' | 89.50' | Drilling Contractor: S&ME | | Core Barrel Type: | | |
| 11/04/04 | 8:30a | n/a | 100.0' | 89.50' | Driller: Travis Costello | | Rig: D-50 Track | Boring Logged By: C Arthur Medlin | |
| Date Boring Completed: | | 10/22/04 | | | <div> Devcon, Tarbell & Associates, Inc. <small>Geotechnical Engineering, Foundation & Construction</small></div> | | BORING PZ-03TO | | |
| REFUSAL @ | | n/a | | | | | | | |
| Total Depth of Hole: | | 100.0' | | | | | | | |
| Page 1 of 5 | | | | | | | | | |

Page 1 of 5


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Plaz. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|------------------|---------------------|------|------------|------------|
| 20 | | | | | | | | | 868.5 |
| 25 | | | | | | | | | 863.5 |
| 30 | | | | | | | | | 858.5 |
| 35 | | | | | | | | | 853.5 |
| 40 | | | | | | | | | 848.5 |
| 45 | | | | | | Lost Water at 42.0' | | | 843.5 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| | | | |
|---------------------------|------------|---|---|
| Ground Surface Elev. (ft) | 888.50 |  Devine Turbell & Associates, Inc. <small>Geotechnical Engineering & Construction Management</small> | BORING PZ-03TO Page 2 of 5. |
| Date Boring Completed: | 10/22/2004 | | |
| Boring Logged By: | CAMedlin | | |


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Plaz. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|------------------|---|------|------------|------------|
| 45 | | | | | | | | | 843.5 |
| 50 | | | | | | Set NW Casing to 50.0'. Drilling with Roller Cone; Water return. | | | 838.5 |
| 55 | | | | | | | | | 833.5 |
| 60 | | | | | | | | | 828.5 |
| 65 | | | | | | Water loss at 62.5'. Back to drilling with the Casing Advancer. | | | 823.5 |
| 70 | | | | | | | | | 818.5 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| | | | |
|---------------------------|------------|--|---------------------------------------|
| Ground Surface Elev. (ft) | 888.50 |  <small>Devine, Tarbell & Associates, Inc.</small> | BORING PZ-03TO Page 3 of 5. |
| Date Boring Completed: | 10/22/2004 | | |
| Boring Logged By: | CAMedlin | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|------------------|------------------|------|------------|------------|
| 70 | | | | | | | | | 818.5 |
| 75 | | | | | | | | | 813.5 |
| 80 | | | | | | | | | 808.5 |
| 85 | | | | | | | | | 803.5 |
| 90 | | | | | | | | | 798.5 |
| 95 | | | | | | | | | 793.5 |


Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| | | | |
|---------------------------|------------|--|---|
| Ground Surface Elev. (ft) | 888.50 |  Devco, Turrell & Associates, Inc. <small>10000 W. 10th Street, Suite 200, Denver, CO 80202</small> | BORING PZ-03TO Page 4 of 5. |
| Date Boring Completed: | 10/22/2004 | | |
| Boring Logged By: | CAMedlin | | |


Belews Creek - PZ-03TO.xls

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|------------------|---|------|-------|------------|
| 0 | | | | | | Boring drilled to 64.3' with Casing Advancer. Start Sampling. ASH. | | | 888.5 |
| 5 | | | | | | | | | 883.5 |
| 10 | | | | | | Soil seam from 10.0' to 12.0'. | | | 878.5 |
| 15 | | | | | | | | | 873.5 |
| 20 | | | | | | | | | 868.5 |


Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|--------|---------------|-------|--------|---|-----------------|-----------------------------------|----|-------------|
| | | Depth of (ft) | | | Client: Duke Energy Corporation | | Casing / Augers: | NW | Automatic |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Pine Hall Ash Landfill | | Split spoon 1: | | |
| 11/05/04 | 10:00a | n/a | 95.0' | 87.15' | Project No.: 024.0069.0000 | | Split spoon 2: | | |
| | | n/a | | | Location: Belews Creek, NC | | Core Barrel ID: | | |
| | | n/a | | | Drilling Contractor: S&ME | | Core Barrel Type: | | |
| | | n/a | | | Driller: Travis Costello | Rig: D-50 Track | Boring Logged By: C Arthur Medlin | | |
| Date Boring Completed: | | 11/05/04 | | | <div> Devine, Farbell & Associates, Inc. <small>Geotechnical Engineering & Construction Services</small></div> | | BORING PZ-03D Page 1 of 4 | | |
| REFUSAL @ | | n/a | | | | | | | |
| Total Depth of Hole: | | 95.0' | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|---------------|------------------|------|------------|------------|
| 20 | | | | | | | | | 868.5 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 25 | | | | | | | | | 863.5 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 30 | | | | | | | | | 858.5 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 35 | | | | | | | | | 853.5 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 40 | | | | | | | | | 848.5 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 45 | | | | | | | | | 843.5 |

| | | |
|--|-----------|---|
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | |
| Ground Surface Elev. (ft) | 888.50 |  <small>Dwyer Tarbell & Associates, Inc. CONSULTING ENGINEERS - GEOTECHNICAL</small> |
| Date Boring Completed: | 11/5/2004 | |
| Boring Logged By: | CAMedlin | |

BORING PZ-03D
 Page 2 of 4.

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) | | | | |
|--|--------------------|------------|----------------------|--|---------------|---|------|------------|------------|--|--|--|--|
| 45 | | | | | | | | | 843.5 | | | | |
| 50 | | | | | | | | | 838.5 | | | | |
| 55 | | | | | | | | | 833.5 | | | | |
| 60 | | | | | | | | | 828.5 | | | | |
| 65 | | S1 | 64.3 | 1 | 1.4 | S1, N=17; Gray, fine ASH (wet). M=21.8% | | | 823.5 | | | | |
| | | | 65.8 | 8 | | | | | | | | | |
| | | | 66.8 | 9 | | | | | | | | | |
| | | S2 | | 2 | 1.5 | S2, N=3/18"; Gray, fine ASH (very wet). M=22.8% | | | | | | | |
| | | | | 1 | | | | | | | | | |
| | | | | 2 | | | | | | | | | |
| | | | 68.8 | - | | | | | | | | | |
| | | | 69.3 | | | | | | | | | | |
| 70 | | | | 2 | | | | | 818.5 | | | | |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | | | | | |
| Ground Surface Elev. (ft) | | 888.50 | |  <small>Devine-Tarbell & Associates, Inc.</small> <small>Geotechnical Engineering, Construction Management & Remediation Services</small> | | BORING PZ-03D | | | | | | | |
| Date Boring Completed: | | 11/5/2004 | | | | | | | | | | | |
| Boring Logged By: | | CAMedlin | | | | | | | | | | | |
| Page 3 of 4. | | | | | | | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Plot. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|---------------|---|------|------------|------------|
| 70 | | S3 | | 2 | 2.1 | S3, N=2/18"; Gray, fine ASH (very wet). M=24.4% | | | 818.5 |
| | | | 71.6 | | | | | | |
| | | | 71.8 | | | | | | |
| | | S4 | | 5 | 1.5 | S4, N= 29; Top 0.3' is Gray, fine ASH (wet). M=23.6% | | | |
| | | | 73.3 | 10 | | Bottom 1.2' is Yellowish red, slightly micaceous, slightly clayey, Very Silty Fine SAND. | | | |
| | | | | 19 | | M=23.5% | | | |
| | | | 74.3 | | | Contact @ 72.1'. | | | |
| 75 | | UD1 | | | | UD1, Pushed 2.0', REC=1.2'. G, A (PI=1), Porosity=0.460, M=26.4% | ML | | 813.5 |
| | | | 75.3 | | | | | | |
| | | S5 | | 9 | 1.0 | S5, N=39; Yellowish pale red, slightly micaceous, Very Silty Fine SAND (dry). M=17.3% | | | |
| | | | 77.8 | 15 | | Drove casing to 75.8'. Drill with Roller Cone Bit to 83.3'. | | | |
| | | | | 24 | | | | | |
| 80 | | | | | | | | | 808.5 |
| | | | 83.3 | | | Run Falling Head Permeability Test - Open Hole from 75.8' to 83.3'. k=1.24E-04 cm/sec. | | | |
| | | S6 | | 10 | 1.3 | S6, N=33; Light yellowish brown, slightly micaceous, Very Silty Fine SAND. M=26.2% | | | |
| 85 | | | 84.8 | 13 | | | | | 803.5 |
| | | | | 20 | | | | | |
| | | | 88.3 | | | | | | |
| | | S7 | | 5 | 1.3 | S7, N=19; Top 0.8' is Light yellowish brown, slightly micaceous, Very Silty Fine SAND. | | | |
| 90 | | | 89.8 | 7 | | Bottom 0.5' is Reddish brown, slightly micaceous, Very Fine Sandy SILT. M=31.8% | | | 798.5 |
| | | | | 12 | | | | | |
| | | | 93.3 | | | | | | |
| | | S8 | | 9 | ? | D screened from 92.0' to 95.0'. | | | |
| 95 | | | 94.8 | 10 | | S8, N=31; Light yellowish brown, slightly micaceous, Very Silty Very Fine SAND. M=36.2% | | | |
| | | | | 21 | | Boring Terminated @ 95.0'. | | | 793.5 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

Ground Surface Elev. (ft) 888.50

Date Boring Completed: 11/5/2004

Boring Logged By: CAMedlin




Devine Tarbell & Associates, Inc.
Foundation Engineering, Construction & Remediation Services

BORING PZ-03D

Page 4 of 4.

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|-----------------|------------|-------------------|------------|---------------|--|------|-------|------------|
| 0 | | | | | | 2.5' of Soil cap on top of the Ash. Augered to 35.0'. | | | 884.9 |
| 5 | | | | | | | | | 879.9 |
| 10 | | | | | | | | | 874.9 |
| 15 | | | | | | | | | 869.9 |
| 20 | | | | | | | | | 864.9 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content


| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|--------|---------------|-------|-------|--|-----------------|--|----|-------------|
| | | Depth of (ft) | | | Client: Duke Energy Corporation | | Casing / Augers: | NW | Automatic |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Pine Hall Ash Landfill | | Split spoon 1: | | |
| 10/19/04 | 10:22a | n/a | 80.8' | 77.0' | Project No.: 024.0069.0000 | | Split spoon 2: | | |
| | | n/a | | | Location: Belews Creek, NC | | Core Barrel ID: | | |
| | | n/a | | | Drilling Contractor: S&ME | | Core Barrel Type: | | |
| | | n/a | | | Driller: Travis Costello | Rig: D-50 Track | Boring Logged By: C Arthur Medlin | | |
| Date Boring Completed: | | 10/20/04 | | | <div> <small>Drilling, Farwell & Associates, Inc. 10000 Old Highway 100, Suite 100, Raleigh, NC 27603</small></div> | | <div>BORING PZ-04D</div> <div>Page 1 of 5</div> | | |
| REFUSAL @ | | n/a | | | | | | | |
| Total Depth of Hole: | | 98.0' | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|---|-----------------|------------|-------------------|------------|---------------|---|------|------------|------------|
| 20 | | | | | | | | | 864.9 |
| 25 | | | | | | | | | 859.9 |
| 30 | | | | | | | | | 854.9 |
| 35 | | | | | | | | | 849.9 |
| 40 | | | | | | | | | 844.9 |
| 43.5 | | | 43.5 | 14 | | | | | |
| | | S1 | | 21 | 1.5 | S1, N=53; Light gray, fine ASH (dry). M=17.5% | | | |
| 45 | | | 45.0 | 32 | | | | | 839.9 |
| Tried Continuous Sampling Tube inside the augers. Stopped using sampler and augered to 43.0'. | | | | | | | | | |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content Ground Surface Elev. (ft) 884.90 Date Boring Completed: 10/20/2004 Boring Logged By: CAMedlin | | | | | | | | | |



BORING PZ-04D

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| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Plaz. Data | Elev. (ft) | | | | | |
|--|--------------------|------------|----------------------|---|------------------|---|------|---------------|------------|-----|---|---|--|--|
| 45 | | | 45.0 | | | | | | 839.9 | | | | | |
| | | S2 | | 12 | 1.5 | S2, N=38; Light gray, fine ASH (dry). M=13.5% | | | | | | | | |
| | | | 16 | | | | | | | | | | | |
| | | | 22 | | | | | | | | | | | |
| | | S3 | 46.5 | 9 | 1.5 | S3, N=17; Light gray, fine ASH (dry). M=16.9% | | | | | | | | |
| | | | 46.8 | 9 | | | | | | | | | | |
| | | | 48.3 | 8 | | | | | | | | | | |
| 50 | | | 49.3 | | 1.5 | S4, N=64; Light gray, fine ASH (dry). M=15.4% | | | 834.9 | | | | | |
| | | S4 | | 23 | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| | | | 50.8 | 46 | | | | | | | | | | |
| | | | 51.8 | | | | | | | 1.5 | S5, N=14; Light gray, fine ASH (dry). M=19.5% | | | |
| | | S5 | | 9 | | | | | | | | | | |
| | 6 | | | | | | | | | | | | | |
| 55 | | | 53.3 | 8 | 1.0 | S6, N=33; Light gray, fine ASH (dry). M=19.7% | | | 829.9 | | | | | |
| | | | | | | | | | | | | | | |
| | | | 54.3 | | | | | | | | | | | |
| | | S6 | | 3 | | | | | | | | | | |
| | | | 13 | | | | | | | | | | | |
| | | | 55.8 | 20 | | | | | | | | | | |
| 60 | | | 56.8 | | 1.5 | S7, N=49; Light gray, fine ASH (moist). M=27.2% | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | S7 | | 7 | | | | | | | | | | |
| | | | 23 | | | | | | | | | | | |
| | | | 58.3 | 26 | | | | | | | | | | |
| | 65 | | | 59.3 | | | | | | | 1.2 | S8, N=88/9"; Light gray, fine ASH (moist). M=28.2' | | |
| | | S8 | | 7 | | | | | | | | | | |
| | | | 38 | | | | | | | | | | | |
| | | | 60.5 | 50/3 | | | | | | | | | | |
| | | | 61.8 | | 1.5 | S9, N=20; Light gray, fine ASH (moist). M=26.7% | | | | | | | | |
| | | S9 | | 9 | | | | | | | | | | |
| | 8 | | | | | | | | | | | | | |
| 70 | | | 63.3 | 12 | 1.5 | S10, N=20; Light gray, fine ASH (wet). M=26.7% | | | 819.9 | | | | | |
| | | | | | | | | | | | | | | |
| | | | 64.3 | | | | | | | | | | | |
| | | S10 | | 9 | | | | | | | | | | |
| | | | 8 | | | | | | | | | | | |
| | | | 65.8 | 12 | | | | | | | | | | |
| | | | 66.8 | | 1.5 | S11, N=77; Light gray, fine ASH (wet). M=20.3% | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | S11 | | 21 | | | | | | | | | | |
| | | | 31 | | | | | | | | | | | |
| | | | 68.3 | 46 | | | | | | | | | | |
| | | | | 69.3 | | | | | | | 1.5 | S12, N=16; Top 0.7' - Light gray, fine ASH (wet). M=23.3% Contact @ 70.0'. Bottom 0.8' - Yellowish brown, slightly micaceous, Silty Fine SAND. M=19.6% | | |
| | | | | 3 | | | | | | | | | | |
| | | S12 | | 3 | | | | | | | | | | |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | | | | | | |
| Ground Surface Elev. (ft) | | 884.90 | |  Drone Turbell & Associates, Inc. | | | | BORING PZ-04D | | | | | | |
| Date Boring Completed: | | 10/20/2004 | | | | | | | | | | | | |
| Boring Logged By: | | 1/3/1900 | | | | | | | | | | | | |
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7/13/2005

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| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|-----------------|------------|-------------------|------------|---------------|---|------|-------|------------|
| 0 | | | | | | Move 5.5' at N52E from PZ-04D and drill down to 76.2' with the Casing Advancer. 2.5' of Soil cap on top of the Ash. ASH to ~70.0'. 2 - 1" Piezometers installed in this boring. D-1 screened from 81.0' to 84.0'. D-2 screened from 94.0' to 97.0'. | | | 884.9 |
| 5 | | | | | | | | | 879.9 |
| 10 | | | | | | | | | 874.9 |
| 15 | | | | | | | | | 869.9 |
| 20 | | | | | | | | | 864.9 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|---------------------------------|-------|--------|-------|--------|--|-----------------|--------------------------------------|----|-------------|
| Depth of (ft) | | | | | Client: Duke Energy Corporation | | Casing / Augers: | NW | Automatic |
| Date | Time | Casing | Hole | Water | Project: Belews Creek Pine Hall Ash Landfill | | Split spoon 1: | | |
| 10/21/04 | 7:46a | 97.0' | 97.0' | 73.2' | Project No.: 024.0069.0000 | | Split spoon 2: | | |
| 11/05/04 - D1 | 7:31a | n/a | 97.0' | 72.93' | Location: Belews Creek, NC | | Core Barrel ID: | | |
| 11/05/04 - D2 | 7:31a | n/a | 97.0' | 73.32' | Drilling Contractor: S&ME | | Core Barrel Type: | | |
| | | | | | Driller: Travis Costello | Rig: D-50 Track | Boring Logged By: C Arthur Medlin | | |
| Date Boring Completed: 10/21/04 | | | | |  <small>Devine, Tarbell & Associates, Inc.</small> | | BORING PZ-04DA Page 1 of 5 | | |
| REFUSAL @ n/a | | | | | | | | | |
| Total Depth of Hole: 97.0' | | | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|------------------|------------------|------|------------|------------|
| 20 | | | | | | | | | 864.9 |
| 25 | | | | | | | | | 859.9 |
| 30 | | | | | | | | | 854.9 |
| 35 | | | | | | | | | 849.9 |
| 40 | | | | | | | | | 844.9 |
| 45 | | | | | | | | | 839.9 |

| | |
|--|------------|
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | |
| Ground Surface Elev. (ft) | 884.90 |
| Date Boring Completed: | 10/21/2004 |
| Boring Logged By: | CAMedlin |




Devine Turbell & Associates, Inc.
FUNDAMENTALS OF GEOTECHNICAL ENGINEERING


BORING PZ-04DA

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| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|------------------|---|------|------------|------------|
| 45 | | | | | | | | | 839.9 |
| 50 | | | | | | | | | 834.9 |
| 55 | | | | | | | | | 829.9 |
| 60 | | | | | | | | | 824.9 |
| 65 | | | | | | | | | 819.9 |
| 70 | | | | | | Into RESIDUAL SOIL at approximately 70.0'. (Determined by color of return water.) | | | 814.9 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content


| | | | |
|---------------------------|------------|---|---|
| Ground Surface Elev. (ft) | 884.90 |  Devine Tardiff & Associates, Inc. <small>Geotechnical Engineering & Foundation Services</small> | BORING PZ-04DA Page 3 of 5. |
| Date Boring Completed: | 10/21/2004 | | |
| Boring Logged By: | CAMedlin | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) | | | | |
|--|--------------------|------------|----------------------|---|------------------|---|------|------------|------------|--|--|--|--|
| 70 | | | | | | | | | 814.9 | | | | |
| 75 | | | | | | | | | 809.9 | | | | |
| | | | 76.2 | | | UD1, Pushed 2.0', REC=1.5'. G, A (PI=Non-Plastic), Porosity=0.400, M=22.7% | ML | | | | | | |
| | | | 78.2 | | | Set Casing down to 78.5' with hammer. Drilled with Roller cone down to 86.5' to run a permeability test. | | | | | | | |
| 80 | | | | | | D-1 screened from 81.0' to 84.0'. | | | 804.9 | | | | |
| 85 | | | | | | Run Falling Head Permeability Test - Open Hole from 78.5' to 86.5'. k=9.82E-05 cm/sec. Note that water dropped 73.95' during test to close to static groundwater level. Drilled with Casing Advancer down to 97.0'. | | | 799.9 | | | | |
| 90 | | | | | | | | | 794.9 | | | | |
| 95 | | | | | | D-2 screened from 94.0' to 97.0'. | | | 789.9 | | | | |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | | | | | |
| Ground Surface Elev. (ft) | | 884.90 | |  <small>Dynamic Test & Associates, Inc.</small> | | BORING PZ-04DA Page 4 of 5. | | | | | | | |
| Date Boring Completed: | | 10/21/2004 | | | | | | | | | | | |
| Boring Logged By: | | CAMedlin | | | | | | | | | | | |

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| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|-----------------|------------|-------------------|------------|---------------|---|------|-------|------------|
| 0 | | | | | | Boring drilled with Casing Advancer. 1.0' Soil cap on top of the ASH. Install Temporary Well to measure Static Water Level. | | | 887.6 |
| 5 | | | | | | | | | 882.6 |
| 10 | | | | | | Lost all water at 6.5'. | | | 877.6 |
| 15 | | | | | | | | | 872.6 |
| 20 | | | | | | | | | 867.6 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content


| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|--------|---------------|-------|---------|---|-----------------|-----------------------------------|----|-------------|
| | | Depth of (ft) | | | Client: Duke Energy Corporation | | Casing / Augers: | NW | Automatic |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Pine Hall Ash Landfill | | Split spoon 1: | | |
| 10/21/04 | 5:53p | n/a | 90.0' | 58.8' | Project No.: 024.0069.0000 | | Split spoon 2: | | |
| 10/25/04 | 12:30p | n/a | 90.0' | 63.5' | Location: Belews Creek, NC | | Core Barrel ID: | | |
| 10/27/04 | 7:40a | n/a | 90.0' | 64.0' | Drilling Contractor: S&ME | | Core Barrel Type: | | |
| 11/04/04 | 8:09a | n/a | 90.0' | Grouted | Driller: Travis Costello | Rig: D-50 Track | Boring Logged By: C Arthur Medlin | | |
| Date Boring Completed: | | 10/21/04 | | | <div> Davis, Turrell & Associates, Inc. <small>Drilling Contractors • Geotechnical Engineers</small></div> | | BORING PZ-05TO | | |
| REFUSAL @ | | n/a | | | | | | | |
| Total Depth of Hole: | | 90.0' | | | | | | | |
| Page 1 of 4 | | | | | | | | | |


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| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|------------------|---|------|-------|------------|
| 0 | | | | | | Boring drilled to 75.1' with Casing Advancer. | | | 887.6 |
| | | | | | | 2 - 1" Piezometers installed in this boring. D-1 screened from 74.8' to 77.8'. D-2 screened from 96.5' to 99.5'. | | | |
| 5 | | S1 | 4.1 | 2 | 1.0 | S1, N=4; Light gray, fine ASH (dry). M=18.4% | | | 882.6 |
| | | | 5.6 | 2 | | | | | |
| 10 | | S2 | 9.1 | 9 | 0.8 | S2, N=23; Light gray, fine ASH (wet). M=27.7% | | | 877.6 |
| | | | 10.6 | 13 | | | | | |
| 15 | | S3 | 14.1 | 13 | 1.0 | S3, N=33; Light gray, fine ASH (wet). M=24.7% | | | 872.6 |
| | | | 15.6 | 18 | | | | | |
| 20 | | S4 | 19.1 | 6 | 0.9 | S4, N=21; Light gray, fine ASH (damp). M=20.0% | | | 867.6 |
| | | | | 11 | | | | | |


Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|--------|---------------|-------|--------|--|-----------------|-----------------------------------|----|-------------|
| | | Depth of (ft) | | | Client: Duke Energy Corporation | | Casing / Augers: | NW | Automatic |
| Date | Time | Casing | Hole | Water | Project: Belews Creek Pine Hall Ash Landfill | | Split spoon 1: | | |
| 11/01/04 - D1 | 12:45p | n/a | 99.5' | 70.45' | Project No.: 024.0069.0000 | | Split spoon 2: | | |
| 11/01/04 - D2 | 12:45a | n/a | 99.5' | 71.67' | Location: Belews Creek, NC | | Core Barrel ID: | | |
| 11/05/04 - D1 | 8:03a | n/a | 99.5' | 70.32' | Drilling Contractor: S&ME | | Core Barrel Type: | | |
| 11/05/04 - D2 | 8:03a | n/a | 99.5' | 72.0' | Driller: Travis Costello | Rig: D-50 Track | Boring Logged By: C Arthur Medlin | | |
| Date Boring Completed: | | 10/28/04 | | | <div><p>Devine, Farwell & Associates, Inc. Environmental & Geotechnical Engineering</p></div> | | BORING PZ-05D | | |
| REFUSAL @ | | n/a | | | | | | | |
| Total Depth of Hole: | | 99.5' | | | | | | | |
| Page 1 of 5 | | | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) | | | | |
|---|--------------------|------------|----------------------|---|---------------|---|------|------------|------------|--|--|--|--|
| 70 | | | | | | | | | 817.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 75 | | | | | | | | | 812.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 80 | | | | | | | | | 807.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 85 | | | | | | | | | 802.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 90 | | | | | | Boring Terminated @ 90.0'. Set 1" PVC, bottom 60' slotted. | | | 797.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 95 | | | | | | | | | 792.6 | | | | |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | | | | | |
| Ground Surface Elev. (ft) | | 887.60 | |  <small>Devine Turbell & Associates, Inc.</small> | | BORING PZ-05TO | | | | | | | |
| Date Boring Completed: | | 10/21/2004 | | | | | | | | | | | |
| Boring Logged By: | | CAMedlin | | | | | | | | | | | |
| Page 4 of 4. | | | | | | | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|---------------|--|------|------------|------------|
| 20 | | | | | | | | | 867.6 |
| | | | 20.6 | 10 | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | 24.1 | | | | | | |
| 25 | | | 25.7 | | | UD1, Pushed 0.5', REC=0. | | | 862.6 |
| | | S5 | | 10 | 1.2 | Set casing to 25.7' and Run Falling Head Permeability Test - Flush Bottom. k=3.73E-04 cm/sec - Unsaturated. | | | |
| | | | | 12 | | S5, N=26; Light gray, fine ASH (damp). M=21.0% | | | |
| | | | 27.2 | 14 | | | | | |
| | | | | | | | | | |
| | | | 29.1 | | | | | | |
| 30 | | S6 | | 7 | 1 | S6, N=23; Dark to light gray, fine ASH (damp). M=21.6% | | | 857.6 |
| | | | | 7 | | | | | |
| | | | 30.6 | 16 | | | | | |
| | | | | | | | | | |
| | | | 34.1 | | | | | | |
| 35 | | S7 | | 12 | ? | S7, N=50' Light gray, fine ASH (wet). M=20.1% | | | 852.6 |
| | | | | 16 | | | | | |
| | | | 35.6 | 34 | | | | | |
| | | | | | | | | | |
| | | | 39.1 | | | | | | |
| 40 | | S8 | | 13 | 0.8 | S8, N=48; Light gray, fine ASH (wet). M=21.3% | | | 847.6 |
| | | | | 22 | | | | | |
| | | | 40.6 | 26 | | | | | |
| | | | | | | | | | |
| | | | 41.6 | | | | | | |
| | | S9 | | 4 | 1.2 | S9, N=20' Light gray, fine ASH (wet). M=23.8% | | | |
| | | | | 8 | | | | | |
| | | | 43.1 | 12 | | | | | |
| | | | | | | | | | |
| | | | 44.1 | | | | | | |
| 45 | | S10 | | 5 | | S10, N=14; Light gray, fine ASH (wet). M=32.5% | | | 842.6 |
| | | | | 4 | | | | | |

| | |
|--|------------|
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | |
| Ground Surface Elev. (ft) | 887.60 |
| Date Boring Completed: | 10/28/2004 |
| Boring Logged By: | CAMedlin |



Deane Tarbell & Associates, Inc.
Geotechnical Engineering, Inc.

BORING PZ-05D

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| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|---------------|--|------|------------|------------|
| 45 | | | | | | | | | 842.6 |
| | | | 45.6 | 10 | | | | | |
| | | | 46.6 | | | | | | |
| | | | | 6 | | | | | |
| | | S11 | | 9 | 1.3 | S11, N=21; Light gray, fine ASH (wet). M=29.1% | | | |
| | | | 48.1 | 12 | | | | | |
| | | | 49.1 | | | | | | |
| | | S12 | 49.5 | 50/5 | 0.5 | S12, N=50/5"; Light gray, fine ASH (dry). M=23.3% | | | 837.6 |
| 50 | | | | | | | | | |
| | | | 51.6 | | | | | | |
| | | | | 9 | | | | | |
| | | S13 | | 17 | 0.9 | S13, N=42; Top 0.5' is Yellowish brwon, slightly micaceous, Silty Fine/Medium SAND. Bottom 0.4' is Light gray, fine ASH (wet). M=20.7% | | | |
| | | | 53.1 | 25 | | | | | |
| | | | 54.1 | | | | | | |
| | | | | 50 | | | | | |
| 55 | | S14 | 54.9 | 50/4 | 1 | S14, N=50/5"; Top 0.1' is Yellowish brown, slight micaceous, Silty Fine/Coarse SAND. Bottom 0.9' is Light gray, fine ASH (dry). M=21.5% | | | 832.6 |
| | | | | | | | | | |
| | | | 56.6 | | | | | | |
| | | | | 33 | | | | | |
| | | S15 | | 30 | 1.2 | S15, N=64; Gray, fine ASH (dry). M=23.4% | | | |
| | | | 58.1 | 34 | | | | | |
| | | | 59.1 | | | | | | |
| | | | | 7 | | | | | |
| 60 | | S16 | | 3 | 0.7 | S16, N=5; Light gray, fine ASH (wet). M=29.7% | | | 827.6 |
| | | | 60.6 | 2 | | | | | |
| | | | | | | | | | |
| | | | 61.6 | | | | | | |
| | | | | 5 | | | | | |
| | | S17 | | 9 | 1.5 | S17, N=20; Gray, fine ASH (wet). M=23.7%, with small inclusions of soil. | | | |
| | | | 63.1 | 11 | | | | | |
| | | | 64.1 | | | | | | |
| | | | | 9 | | | | | |
| 65 | | S18 | | 17 | 1.5 | S18, N=67; Gray, fine ASH (wet). M=26.4% | | | 822.6 |
| | | | 65.6 | 50 | | | | | |
| | | | | | | | | | |
| | | | 66.6 | | | | | | |
| | | | | 1 | | | | | |
| | | S19 | | 1 | 1.5 | S19, N=12; Dark gray, fine ASH (wet). M=28.5% | | | |
| | | | 68.1 | 11 | | | | | |
| | | | | | | | | | |
| | | | 69.1 | | | | | | |
| | | | | 6 | | | | | |
| 70 | | S20 | | 6 | 1.5 | S20, N=15; Dark gray, fine ASH (wet). M=30.0% | | | 817.6 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| | | | |
|---------------------------|------------|--|---------------|
| Ground Surface Elev. (ft) | 887.60 |  DTA Drilling Technology Associates, Inc. 10000 E. 1st Avenue, Suite 100, Denver, CO 80231 | BORING PZ-05D |
| Date Boring Completed: | 10/28/2004 | | |
| Boring Logged By: | CAMedlin | | |


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| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|--|--------------------|------------|----------------------|------------|---------------|--|------|------------|------------|
| 70 | | | 70.6 | 9 | | | | | 817.6 |
| | | | 71.6 | | | | | | |
| | | S21 | | 4 | 1.5 | S21, N=9; Top 1.0' is Gray, fine ASH (wet). M=31.2% | | | |
| | | | 73.1 | 6 | | Bottom 0.5' is Yellowish brown, slightly micaceous, Fine Sandy Clayey SILT (damp). | | | |
| | | | | 3 | | Combined Ash/Residual Sample, M=24.1% | | | |
| | | | 74.1 | | | Ash/Residual Contact @ 72.6'. | | | |
| 75 | | S22 | | 4 | 1.5 | S22, N=12; Reddish yellow, slight micaceous, Fine Sandy Silty CLAY (damp). G, A (Pl=12), | CL | | 812.6 |
| | | | 75.6 | 8 | | M=20.5% | | | |
| | | | | | | Drive casing from 74.1' to 76.0'. | | | |
| | | | 76.6 | | | D-1 screened from 74.8' to 77.8'. | | | |
| | | UD2 | | | | UD2, Pushed 1.4', REC=1.4'. G, A (Pl=9), Porosity=0.309, M=17.7% | CL | | |
| | | | 78.4 | | | Lab Permeability - k=1.00E-06 cm/sec. | | | |
| | | S23 | | 6 | 1.5 | S23, N=18; Top 0.3' is Yellowish brown, Fine Sandy SILT. | | | |
| | | | 79.5 | 7 | | Bottom 1.2' is Light gray, slightly micaceous, Fine Sandy Silty CLAY. M=32.3% | | | |
| 80 | | | | 11 | | Roller Cone to 79.5'. | | | 807.6 |
| | | | | | | Run Falling Head Permeability Test - Open hole from 76.0' to 79.5'. | | | |
| | | | | | | k=5.91E-06 cm/sec. | | | |
| | | | 83.1 | | | | | | |
| | | S24 | | 6 | 1.5 | S24, N=20; Pale reddish yellow, slight micaceous, Fine Sandy SILT. M=33.4% | | | |
| | | | 84.6 | 8 | | | | | |
| 85 | | | | 12 | | | | | 802.6 |
| | | | | | | | | | |
| | | | 88.1 | | | | | | |
| | | S25 | | 35 | 1.3 | S25, N=82; Yellowish brown, slightly micaceous, Silty Fine SAND. M=20.5% | | | |
| | | | 89.6 | 32 | | | | | |
| 90 | | | | 50 | | | | | 797.6 |
| | | | | | | | | | |
| | | | 93.1 | | | | | | |
| | | S | 93.2 | 50/1" | | S, N=50/1"; No Recovery. | | | |
| 95 | | | | | | | | | 792.6 |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | |
| Ground Surface Elev. (ft) | | 887.60 | | | | | | | |
| Date Boring Completed: | | 10/28/2004 | | | | | | | |
| Boring Logged By: | | CAMedlin | | | | | | | |
| DTA | | | | | | BORING PZ-05D | | | |
| Dynamic Test & Associates, Inc. 11111 111th Street, Suite 100, Richmond, BC V6V 1K1 | | | | | | Page 4 of 5. | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) | | | | |
|---|--------------------|------------|----------------------|---|---------------|--|---------------|------------|------------|--|--|--|--|
| 95 | | | | | | | | | 792.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | 97.9 | | | D2 screened from 96.5' to 99.5'. | | | | | | | |
| | | S26 | | 41 | | | | | | | | | |
| | | | 98.8 | 50/5 | 0.8 | S26, N=50/5"; Yellowish brown, slightly micaceous, Silty Fine/Coarse SAND. M=14.7% | | | | | | | |
| 100 | | | | | | Boring Terminated @ 99.5'. | | | 787.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 105 | | | | | | | | | 782.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 110 | | | | | | | | | 777.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 115 | | | | | | | | | 772.6 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 120 | | | | | | | | | 767.6 | | | | |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | | | | | |
| Ground Surface Elev. (ft) | | 887.60 | |  | | | BORING PZ-05D | | | | | | |
| Date Boring Completed: | | 10/28/2004 | | | | | | | | | | | |
| Boring Logged By: | | CAMedlin | | | | | | | | | | | |
| Page 5 of 5. | | | | | | | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. | Elev. (ft) |
|------------|--------------------|---------------|----------------------|---------------|------------------|--|------|-------|------------|
| 0 | | | | | | Boring drilled with Casing Advancer. 1.0' of Soil Cap on top of the Ash. Install Temporary Well to measure Static Water Level. ASH. | | | 887.6 |
| 5 | | | | | | | | | 882.6 |
| 10 | | | | | | Lost water at 10.0'. | | | 877.6 |
| 15 | | | | | | | | | 872.6 |
| 20 | | | | | | | | | 867.6 |


Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content


| Water Level Readings | | | | | Project Information | | Equipment | ID | Hammer/Drop |
|------------------------|--------|---------------|-------|--------|--|-----------------|-----------------------------------|----|-------------|
| | | Depth of (ft) | | | Client: Duke Energy Corporation | | Casing / Augers: | NW | Automatic |
| Date | Time | Cas- ing | Hole | Water | Project: Belews Creek Pine Hall Ash Landfill | | Split spoon 1: | | |
| 10/29/04 | 1:12p | n/a | 69.3' | 59.6' | Project No.: 024.0069.0000 | | Split spoon 2: | | |
| 11/01/04 | 12:41p | n/a | 69.3' | 62.8' | Location: Belews Creek, NC | | Core Barrel ID: | | |
| 11/03/04 | 7:05a | n/a | 69.3' | 62.92' | Drilling Contractor: S&ME | | Core Barrel Type: | | |
| 11/05/04 | 7:58a | n/a | 69.3' | 62.9' | Driller: Travis Costello | Rig: D-50 Track | Boring Logged By: C Arthur Medlin | | |
| Date Boring Completed: | | 10/29/04 | | | <div><div>DTA</div><div>Devine, Turbell & Associates, Inc. <small>Providing Quality Service & Professional Opinions</small></div></div> | | BORING PZ-05S | | |
| REFUSAL @ | | n/a | | | | | | | |
| Total Depth of Hole: | | 69.3' | | | | | | | |
| Page 1 of 3 | | | | | | | | | |


| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|------------|--------------------|------------|----------------------|------------|---------------|------------------|------|------------|------------|
| 20 | | | | | | | | | 867.6 |
| 25 | | | | | | | | | 862.6 |
| 30 | | | | | | | | | 857.6 |
| 35 | | | | | | | | | 852.6 |
| 40 | | | | | | | | | 847.6 |
| 45 | | | | | | | | | 842.6 |

Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content

| | | | |
|---------------------------|------------|---|--|
| Ground Surface Elev. (ft) | 887.60 |  <small>Davis, Tardiff & Associates, Inc. 11000 E. 1st Ave. Suite 100 • Denver, CO 80231</small> | BORING PZ-05S Page 2 of 3. |
| Date Boring Completed: | 10/29/2004 | | |
| Boring Logged By: | CAMedlin | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) | | | | | | |
|--|--------------------|------------|----------------------|---|---------------|---|------|------------|------------|--|--|--|--|--|--|
| 45 | | | | | | | | | 842.6 | | | | | | |
| 50 | | | | | | | | | 837.6 | | | | | | |
| 55 | | | | | | | | | 832.6 | | | | | | |
| 60 | | | | | | | | | 827.6 | | | | | | |
| 65 | | | | | | | | | 822.6 | | | | | | |
| | | | 66.0 | | | UD1, Pushed 0.8', REC=0.3'. ASH. | | | | | | | | | |
| | | | 66.3 | | | Drilled to 69.3' and Run Falling Head Permeability Test - Flush Bottom. k=1.75E-04 cm/sec - Saturated. | | | | | | | | | |
| | | | | | | S screened from 66.3' to 69.3'. | | | | | | | | | |
| 70 | | | | | | Boring Terminated @ 69.3'. | | | 817.6 | | | | | | |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | | | | | | | |
| Ground Surface Elev. (ft) | | 887.60 | |  <small>Drilling Technology & Associates, Inc.</small> <small>Consulting Engineers, Geologists, & Environmental Scientists</small> | | BORING PZ-05S | | | | | | | | | |
| Date Boring Completed: | | 10/29/2004 | | | | | | | | | | | | | |
| Boring Logged By: | | CAMedlin | | | | | | | | | | | | | |
| Page 3 of 3. | | | | | | | | | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|--|--------------------|------------|----------------------|---|---------------|------------------|------|--------------------------------------|------------|
| 20 | | | | | | | | | 867.6 |
| 25 | | | | | | | | | 862.6 |
| 30 | | | | | | | | | 857.6 |
| 35 | | | | | | | | | 852.6 |
| 40 | | | | | | | | | 847.6 |
| 45 | | | | | | | | | 842.6 |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | |
| Ground Surface Elev. (ft) | | 887.60 | |  | | | | BORING PZ-05S Page 2 of 3. | |
| Date Boring Completed: | | 10/29/2004 | | | | | | | |
| Boring Logged By: | | CAMedlin | | | | | | | |

| Depth (ft) | Casing Blows/ft | Sample No. | Sample Depth (ft) | Blows / 6" | Recovery (ft) | SOIL DESCRIPTION | USCS | Piez. Data | Elev. (ft) |
|--|--------------------|--|----------------------|------------|---------------|---|------|------------|------------|
| 45 | | | | | | | | | 842.6 |
| 50 | | | | | | | | | 837.6 |
| 55 | | | | | | | | | 832.6 |
| 60 | | | | | | | | | 827.6 |
| 65 | | | | | | | | | 822.6 |
| | | | 66.0 | | | UD1, Pushed 0.8', REC=0.3'. ASH. | | | |
| | | | 66.3 | | | Drilled to 69.3' and Run Falling Head Permeability Test - Flush Bottom. k=1.75E-04 cm/sec - Saturated. | | | |
| | | | | | | S screened from 66.3' to 69.3'. | | | |
| 70 | | | | | | Boring Terminated @ 69.3'. | | | 817.6 |
| Sample Types S:split spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content | | | | | | | | | |
| Ground Surface Elev. (ft) | 887.60 |  <small>Devine Tarbell & Associates, Inc. Geotechnical Engineering & Construction Services</small> | | | | BORING PZ-05S Page 3 of 3. | | | |
| Date Boring Completed: | 10/29/2004 | | | | | | | | |
| Boring Logged By: | CAMedlin | | | | | | | | |